





see Hastings notes 22nd Jan 1912  
middle page of book no. 8 2/4  
and p. 9-10 2/4 of book no. 8  
and p. 10-11 3/4 of book no. 8





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Pearson, O. F.

1971

Catalogue

#4750 - #498~~4~~3

Peru

Bolivia

Argentina





Pearson  
1971

# Catalog

August 21, 1971

chromosome 5 mi. E Yungos, Cañete Valley, 8,340 ft., Dept. of Lima, Peru  
4750 ♀ *Phyllotis*? interesting 190 x 100 x 23 x 18 19gms

chromosome 6 mi. NE Yungos, Cañete Valley, ~~8,870~~ 8,870 ft., Dept. Lima, Peru  
4751 ♀ *Calomys*? large nipples; 5 large abs. [194] x [88] x 24 x 20 40gms

August 23, 1971

3 mi. SE Izcuchaca, Rio Montano, 9000 ft., Dept. Huancaavelica, Peru  
4752 ♀ *Phyllotis* ut. thin, no emb. 232 x 125 x 27 x 24 35gms.  
4753 ♀ *Phyllotis* " " 238 x 130 x 28 x 26 30gms.

chromosome 6 mi. NE Yungos, Cañete Valley, 8,870 ft., Dept. of Lima  
4754 ♂ *Phyllotis* 204 x 110 x 25 x 21 23g. <sup>test 3mm</sup>

Aug. 24

17 mi. WNW Huancayo, 11,160 ft., Dept. of Junin  
4755 ♂ *Calomys* testes 2mm  
4756 ♀ " uterus juv.

3 mi. SE Izcuchaca, Rio Montano, 9000 ft., ~~Huancaavelica~~ Huancaavelica, Peru  
4757 ♂ *Calomys*.  
chromosome 4758 ♂ *Phyllotis* testis 9, SV 11mm.

chromosome 2 mi SE Huanta, 9500 ft., Dept. ayacucho,  
4759 ♀ *Phyllotis* uterus vascular  
chromosome 4760 ♂ *Abodon* testis 3mm

7 mi. NE Yungos, Rio Cañete 9080 ft.; Dept. of Lima.  
4761 ♂ *Dryomys* caught 8/21 testes 5, SV 3

2 mi SE Huanta, 9500 ft., ayacucho  
4762 ♂ *Phyllotis* testis 3mm  
4763 ♀ " uterus juvenile



Pearson  
1971

# Catalog

3 mi. SE Pzenchaca, Rio Mantaro, 9000 ft., Dept. Huancavelica

chromosome

4764

♂ *Akodon*

testis 4 mm

4765 ♂ *Calomys*

139 x 68 x 19 x 15 11 gm.

17 mi WNW Huancayo 11,160 ft., Dept. Junin

4766 ♂ *Calomys* testis 3 mm.

148 x 70 x 19 x 16 12 gm.

6 mi NE Yungos, Rio Canete, 8870 ft., Dept. Lima, Peru

4767 ♂ *Calomys*? testis 3 mm

193 x 100 x 25 x 19 18 gm.

Sept. 4

14,000 ft.

1 mi. NE Challa Polca, Dept. of Puno, Peru

chromosome

4768

♀ *Phyllotis boliviensis*

Vagina not open. Uterus white  
no scars

chromosome

4769

♀ *Bolomys berlepschi*

" " " Uterus thin, no scars

chromosome

4770

♀ *Chocomaia jelskii*

uterus faint scars

Sept. 5, 2 mi. NE Tarata, 11,500 ft., Dept. of Tacna

4771 ♀ *Phyllotis magister*

uterus white, no scars small  
stomach with greenish, yellow & brownish

4772

♂

"

*darwini*

testis 3 mm

stomach green vegetable, swells soggy

4773

Food

*Bufo spinulosus*

in mousetrap overnight

Sept. 6

4774

♂

*Ph. magister*

stomach yellow

testis 12 flabby, SV 13, chided tubes barely visible

yellow stain on chest, lips, inguinal

4775

♀

*Akodon bolivi*

stomach cont. black. Uterus thick, no scars  
in coarse green grass along asqueña.

skull only

4776

♀

*Ph. magister*

240 x 129 x 30 x 25 50g vagina not open, uterus thin  
white, pelvis not open; stom. grey.

~~4777~~

~~♀~~

~~"~~

~~"~~

~~224 x 115~~

skull only

4777

♀

"

"

224 x 115 x 27 x 24 42g vag. not open, ut. thin white, pelvis not  
open; stom green, black, grey mix.

skull only

4778

"

"

test 4 mm white, SV 4 mm  
243 x 125 x 30 x 24 52g. stom. green-brown.





166 x 75 x 21 x 12 22g. ~~6~~ 9, 5V 7



Pearson  
1971

Catalog  
6 km NE Tarata, 12,900 ft., Dept. of Tacna, Peru  
Sept. 12

- 4798 ♂ Ph. modestus testis 7, SV 6  
4799 ♀ " darwini ut. juv.

13 km NE Tarata, 14,700 ft., Dept. of Tacna  
Sept. 13

- 4800 ♂ Ph. darwini testis 3, SV 2

- chronose  
4801 ♀ Ph. boliviensis  
chronose  
4802 ♀ Ph. darwini  
Vag not open, ut. thin white no scars  
pelvis not open  
vagina not open, ut. watery, no scars,  
vagina thick, pelvis sl. open

6 km NE Tarata 12,900 ft., Dept. of Tacna  
Sept. 14 (caught Sept. 12)

- chronose  
4803 ♂ Ph. darwini testis 3 mm  
skull only  
4804 ♂ " " 149 x 70 x 24 x 22 17g. test 4 mm.  
skull only  
4805 ♂ " " 153 x 75 x 24 x 21 15g. test 4 mm  
skull only  
4806 ♂ Bolomys berlepschi 173 x 74 x 23 x 15 31g. test 10, SV 11, epidid  
tules conflua

13 km NE Tarata, 14,700 ft., Dept. of Tacna

- Sept. 16 (caught Sept. 13)  
chronose  
4807 ♀ Ph. boliviensis vagina not open, ut. thickish but no scars,  
pelvis open.

Tarata, 10,150 ft., Dept. of Tacna, Sept. 16

- 4808 Prolemmus alticolor

10 mi. S Tarata, 10,000 ft., Dept. of Tacna

- Sept. 18  
4809 Prolemmus pantherinus  
Ctenoblepharis open desert, afternoon

- Sept. 19  
skull only  
4810 ♂ Ph. darwini testis 4 mm white  
SV 2 mm  
skull only  
4811 ♂ " " 203 x 107 x 25 x 25  
skull only  
4812 ♀ " " 194 x 100 x 25 x 24 24g. ut. thin white no scars  
plum closed  
ear tag 402  
4813 Prolemmus pantherinus  
Ctenoblepharis under stones, open desert, afternoon





4814 *Lepus pantherinus*  
skull + foreleg  
4815 *Ctenoblepharis*  
*Felis*

~~under stone~~ dug out of burrow in bank dry wash  
pick up, in cave near side canyon.

Sept. 20

skull only  
4816 ♀ *Phyllotis darwini*

skull only  
4817 ♀ " "

skull only  
4818 ♀ " "

skull only  
4819 ♀ " *magister*

skull only  
4820 ♂ " "

skull only  
4821 ♀ " "

skull only  
4822 ♀ " *darwini*

skull only  
4823 ♂ " "

4824 ♀ " *darwini* juv

Vagina not open, ut. juv.  
185 x 97 x 25 x 22 23 g  
Vag. open and muscular, ut. thin vascular, pelvis closed.  
188 x 95 x 24 x 23 25 g  
Vag. closed, ut. med., ut. with scars.  
204 x 107 x 23 x 25 37 g.

150  
150 x 80 x 24 x 18 15 g all juv.

165 x 85 x 25 x 20 17 g test 4 1/2 SV 2

all juv.  
late preg 2 rts, left. 22 mm CR  
215 x 112 x 25 x 27 50 g.

test 10 mm  
227 x 117 x 26 x 27 45 g SV 14 mm

Sept. 21

chromos  
4825 ♂ *Ph. magister*

on study grid in big dead cactus. Test 6  
SV 5

4826 *Ctenoblepharis* *Lepus pantherinus*

NE

2 mi N Tarata 11,500 ft, Dept. Tacna, Peru

Sept. 26, 1971

4827 ♀ *Ph. magister* 224 x 123 x 29 x 25 48 g.  
postoral streak; yellow-green chest. ut. slender, no emb.

skull only  
4828 ♂ *Ph. darwini* 204  
124 x 110 x 26 x 24 testis 4 mm.  
30 gms.

sk. only  
4829 ♂ *Ph. darwini* 225 x 121 x 26 x 24  
testis 10 mm; SV 10  
41 gms

skull only  
4830 ♀ *Akodon boliviensis* in grass along asquira  
ut. slender, no emb. 152 x 65 x 20 x 13 20 gm

4831 ♂ *Akodon boliviensis* in grass along asquira SV 5 mm; testis 10 mm, gray  
171 x 75 x 23 x 14 34 gm

skull only  
4832 ♀ " " 160 x [59] x 21 x 14 28 g Vag. not open, uterus many scars

skull only  
4833 ♀ " " 150 x — — — Vag. not open, ut. juv.

skull only  
4834 " " 150 x 64 x 20 x 13 18 g. Vag. not open, ut. juv.



Prason  
1971

skull only  
4835 ♂ *Bolomys berlepschi* 175 x 74 x 22 x 12 33 g. testis 9, SV 10  
skull only  
4836 ♀ " " 154 x 63 x 21 x 13 28 g. vag. not open, ut. thin  
no scars, pelvis closed

Sept. 27  
4837 *Bufo strimmarum* Toad under stone 20 ft from reservoir  
4838 Frog *Talita* in reservoir.

Sept. 28  
4839 ♂ *Akodon boliviensis* on grid along ascaris. Test 8, SV 10

Sept. 29  
chrome  
4840 ♂ *Phyllotis or andinum* tagged 423 testis 13, SV 16  
chrome  
4841 ♀ " " tagged 417 vag. closed, ut. with scars,  
pelvis slightly open

13 km NE Tarata, 14,700 ft., Dept of Tarma

Oct. 2

4842 ♂ *Phyllotis darwini* caught on grid, Dead at 6:00 testis 12, SV 19  
4843 ♀ *Akodon andinum* dead on grid during day at 10:00 no emb.  
ut. with scars

Oct. 4

4844 ♀ *Akodon andinum* 10g. tagged 456 juv. - dead in trap  
4845 ♂ *Phyllotis darwini* testis 3 mm tagged 458 dead in trap  
skull only  
4846 ? " " missing in trap set Sept. 14.  
skull only  
4847 ? " " " " " " " "

Oct. 5

4848 ♂ *Phyllotis darwini* ascaris in stomach up to 45 mm long.  
skull only  
4849 ♂ " " Tagged 462 test. 12, SV 18  
skull only  
4850 ♀ " " 228 x 115 x 27 x 27 30 g. Tagged 459 test 11, SV 14  
6 45-mm ascarids in stomach.  
vag. open, with small, vaginal plug, uterus estrus  
194 x 102 x 26 x 24 29 g. pelvis wide open  
vag. open, uterus 1 mm  
4851 ♀ " " 198 x 102 x 26 x 23 30 g. no scars, pelvis not open  
4852 *Tirolomys multiformis* juv. under stone with 4853-4856  
4853 " " "





- [illegible]



Caught by Bruner. Stomach grey, brown flecks  
134 x 57 x 20 x 12 14g. uterine juv.

Oct. 15

dead on ground. <sup>8.</sup> such in stock.

testis 3 —

129. 135+60x21x12 129

tagged 486. Died in trap 169 x 73 x 22 x 15 30g. test 8, s/v 8

$\frac{1}{2}$  mi. W Chalfont, 14,000 ft., Dist. of <sup>Tacoma</sup> ~~Port~~

008.21

stark gelb + grün

..

1 fetus at horn 35 mm CR

$$292 \times 86 \times 41 \times 6 \quad 270 \text{ g.}$$

1 mi. SW Anconarea, 14,000 ft., Dept. of Puno

O.R. 21

178x85x26x19 28g. test 9, 5V12

2 mi W Chollapala, 14,000 ft; Dept. of ~~the~~ Tama

Oct. 22

28g. ut. imm white, stomach yellowish green/pale.

caught by 50 Benson  
x 38 x 25 x 10 m.

169 x 78 x 25 x 19 22g Test 9, SV11 stone empty  
caught by S.B. Benson

caught by S B Benson  
75 x 15 x 18 22

165 x 75 x 25 x 18 22g scars, Vagina muscular, follicles  
caught by AK P. Vag. not open, int. fluid-filled, Vag. muscular

167 x 73 x 24 x 18 21g Stomach green-yellow-grey-speckled  
caught by AXP. Vag. open, ut. pink fluid-filled, vagina normal

 $168 \times 77 \times 24 \frac{1}{2} \times 19 \text{ 20g.}$ 

4. coll. Dec. 4. 1922

1 mi. SW Anconito, 14,000 ft.; Dept. of Puerto Oct. 22

Way not open. Vt. thin no score

$$161 \times 77 \times 25 \times 17 = 209$$

$\frac{1}{2}$  mi. W Chaltipoka, 14,000 ft.; Dist. of Taena Oct. 22

-x-x-x-220g 2 fatua left horn 20 mm CR



- Tacna
- $\frac{1}{2}$  mi. W Challopalea, 14,000 ft., Dept. of Peru  
Oct. 23
- 4892 ♂ *Bdonyx berlepsi* caught by AKP 32g. T10 SV14  
stomach grey-green-flecked
- 4893 ♀ " " " 31g. 3 emb. bumps

- Oct. 24
- 4894 ♀ *Ctenomys spinosus* Vag. open 3 embryos 15mm bumps.  
280x80x40x7 290g.

- Tarata, 10,100 ft., Dept. of Tacna  
Oct. 25
- 4895 ♂ *Mus musculus* caught in store

- $\frac{1}{2}$  mi. W Challopalea, 14,000 ft.,  
Oct. 25
- chronos 4896 ♂ *Galeomys* caught on grid at night  
145x43x20x22 34g - testes 9, SV 10
- chronos 4897 ♀ *Elgmodontia* 167x82x25x19 Vag. open, uterine fluid filled

- Oct. 27 (caught Oct. 24)
- 4898 ♂ *Phyllotis sublimis* 150x45x20x20 34g test 8 SV 10
- 1 mi. SW Anconmarca, 14,000 ft., Dept. of Peru, Peru

- Oct. 27 (caught Oct. 20)
- 4899 ♂ *Elgmodontia* 195x97x25x20 35g. test 10, SV 15.

$\frac{1}{2}$  mi. W Challopalea, 14,000 ft., Dept. Tacna

Oct. 28 (caught & preserved Oct. 24)

- 4900 6? Tadpoles, prob. 2 or 3 spp. Caught by Alison along Rio Maure.  
Hacienda Ontave, 12,900 ft., 40 km S. Maure, Peru, Peru

- Oct. 30
- skull only 4901 ♀ *Ph. osiaca* caught by S. Benson stomach buffy grey.  
206x106x25x23 27g. Vag. not open. VT. prev. Pelvis closed.
- skull only 4902 ♀ " " caught by SB. stomach brownish
- skull only 4903 ♂ " " caught by SB 208x108x25x22 28g. Vag. not open, uterine prev., pelvis closed
- skull only 4904 ♂ " " 222x119x25x22 32g test. 4, SV 4 stomach green
- skull only 4905 " *sublimis* 235x125x26x23 34g. T. 4, SV 3 " white
- 4905 " *sublimis* 139x45x20x22 34g. Vag. not open. VT. 1mm uterine no seen.  
Pelvis open. Stomach creamed green  
weighs 7g



- skull only  
4906 ♀ *Alibon boliviensis* Caught by S. Benson. Stomach coarse veget. + round worms, green not  
151x61x20x14 17g. Vag. not open, prob. ut. scars. Stomach grey fleshed, not  
caught by SB  
skull only  
4907 ♀ " " 148x64x20x13 17g. Vag. not open, ut. juv. green.  
caught by SB  
skull only  
4908 ♀ *Bolomys amoenus* 165x70x20x14 21g Vag open. Uterus scars. dark green  
skull only  
4909 ♀ " " 140x60x20x13 15g. Vag closed, ut. juv. stomach coarse  
veg. matter

Oct. 31

- 4910 ♂ *Ph. osilae* Caught by S. Benson  
221x110x26x22 35g. Test 5, SV 5 stomach greenish  
caught by S. Benson Vagina closed. Uterus juv. no emb.  
4911 ♀ " " 207x106x24x22 30g.  
skull only  
4912 ♀ " " Caught by S. Benson. Vag not open. Ut. immature  
skull only  
4913 ♀ " " 208x99x25x21 34g.  
caught by S. Benson Vag not open. Ut. immature  
208x104x24x23 30g.

Oct. Nov. 1

- 4914 ♂ *Bolomys amoenus* 150x62x19x13 22g. T11, SV 14 dead on grid  
tagged 612 dead on grid  
4915 ♂ " " 153x61x20x12 20g. T10 SV 13  
chromat. caught by S. Benson  
4916 ♂ *Nesomys ebraeus* 187x72x24x17 50g. T8 SV 10  
skull only  
4917 ♂ *Ph. osilae* Caught by S. Benson  
230x118x25x24 37g T. 5mm.  
4918 ♀ " " caught by S. Benson  
215x111x16x22 30g. Vag. not open, ut. juv.

Nov. 3

- skull only  
4919 ♀ *Bolomys amoenus* Uterus 1mm but not preg. caught 11/2  
23g tagged #618, dead on grid.  
4920 ♀ *Phyllotis osilae* 195x95x25x22 23g uterus juvenile  
4921 small tadpoles from shallow pond along road  
4922 medium tadpoles from deep pool in tiny creek above camp

Tarata, 10,100 ft., Dept. of Tarma, Peru

Nov. 4

- 4923 ♀ *Alibon boliviensis* ut. very slender, no emb  
154x67x20x13 19g  
4924 ♂ " " 168x71x21x13 24g T6, SV 4

2 mi. NE Tarata, 11,500 ft.

caught Nov. 5, killed Nov. 7

- skull only  
4925 *Ph. magister* 275x140x29x28 83g. T11, SV 15  
skull only  
4926 *Ph. " "* 295x157x32x27 68g. T11, SV 5





skull only, morro Sana, 200ft., 65 km W Tacna, Dept. of Tacna, Peru  
 4927 ♀ Ph. darwini nov. 9 lt. irid with recent scars.  
 34g. caught by Benson. Vag. open. inf. med + large,

morro Sana, 1000ft., 65 km W. Tacna, Dept. of Tacna

nov. 10

4928 ♀ Ph. darwini lactating, pregnant, 6 13-mm embryos.  
 skull only, 228x115x25x25 67g. stomach packed with food?  
 4929 ♀ " " 42g. vag. open. 42g. 2 25-mm CR embryos.  
 skull only, 4930 ♂ " " 30g. T 8mm/pink, SV 8mm.  
 skull only, 4931 ♀ " " 25g. Vag. open - 7emb., bunches 5mm.  
 4932 ♀ mus musculus 154x65x21x14 25g. Vag. open. 4emb.

nov. 12 (200ft.)

skull only, 4933 ♂ Ph. darwini 46g. T10, SV15 caught by Benson in rock outcrops

morro Sana 200ft., 65 km. W Tacna, Dept. of Tacna

nov 13

4934 Tropidurus peruvianus near camp.  
 4935 " "  
 4936 " "  
 4937 " "  
 4938 " "  
 4939 " "  
 4940 " "  
 4941 Snake Dromicus tachymenoides

morro Sana, 1000ft., 65 km W Tacna

nov. 12

4942 Snake Dromicus tachymenoides among man-root and rocks.

morro Sana, 10ft., 65 km W Tacna

4943 Iguanodon shot by Benson on black rocks above surf.  
Tropidurus melanocephalus



13 km NE Tarata, 14,700 ft., Dept. of Tacna  
nov. 15

4944 ♂ Alkodon andinus caught by A.K.P. 121 x 43 x 19 x 13 15g. T9 SV12  
Tarata, 10,100 ft., Dept. of Tacna, Peru.

nov. 15

4945 ♀ Alkodon boliviensis caught by Benson 148 x 65 x 21 x 13 15g, intestines juv.  
chromos 4946 ♂ " " caught by Benson 176 x 75 x 22 x 13 23g Testes 7, SV5

13 km NE Tarata, 14,700 ft., Dept. of Tacna

nov. 22

4947 Siolaema <sup>mocquardi</sup> multiformis? under yareta on study grid.  
morro Sama, 200 ft., 65 km. W Tacna, Dept. of Tacna

caught nov. 12, killed nov. 24

shins stolen by cat { 4948 ♂ Phyllotis darwini saved lung + thigh + heart. 208 x [92] x 24 x 23 54g. T10, SV18  
4949 ♀ " " saved lung + thigh tissue pelvis open 193 x [80] x 25 x 23 45g nosed. vt thick

17 km NE Tarata, 14,700 ft., Dept. of Tacna

caught nov. 15, killed nov. 24

4950 ♂ Phyllotis darwini saved lung and thigh tissue 232 x 119 x 26 x 24 53g T8m, SV10  
4951 ♂ " " saved lung + thigh tissue 233 x 112 x 27 x 26 69g. T11, SV16

Tarata, 10,100 ft., Dept. of Tacna, Peru

4952 4 or 5 tadpoles from a pond at edge of town. Kept about 2 weeks. Preserved 12/1  
4 mi. N Tacna, 3360 ft.,

nov. 29

4953 Ctenoblepharis sp. lizard 4 snakes at tent site, 50 ~~km~~ m from grid.  
13 km SSW Pizacoma, 13,200 ft., Dept. of Puno

Dec. 4

4954 Baby bat (desoloe) found alive on floor of cave by Carol Pearson



Pearson  
1971

6 mi. W Parotani, 10,600 ft., Dept. of Cochabamba, Bolivia

Dec. 7

chromos

4955 ♂ *Ph. wolffsohni* 258 x 137 x 26 x 23 45g, TT SV 7

4 mi. N Parotani, 8500 ft., Dept. of Cochabamba, Bolivia

495

chromos

4956 ♂ *Ph. wolffsohni*

chromos

4957 ♀ " "

Dec. 8

38 mi. NE Villazon, <sup>12,200 ft.</sup> Dept. of Potosi, Bolivia

Dec. 12

4958 *Liolaemus* sp. lizard ' on open stony plain

4959 " " " "

4960 " *Liolaemus* sp. "

4961 " " " "

12 mi. NW Pucayachi, 10,000 ft., Dept. of Tarija, Bolivia

Dec. 13 (caught Dec. 12).

chromos

4962 ♂ *Ph. sp.* testi 10; SV 6 - 230 x 120 x 26 x 25 42gms.

chromos

4963 ♂ " " testi 9; SV 7 - 218 x 112 x 25 x 24 39gms.

1/2 mi. N Tilcara, 8500 ft., Dept. of Jujuy, Argentina

Dec. 14

chromos

4964 ♀ *Andinophis* 272 x 120 x 29 x 26 90g. huge ovaries, uterine scars.



Pearson  
1971

Tilcara 8000 ft., Dept. of Jujuy, Argentina

Dec. 15

chromas

4965 ♂ *Phyllotis caprimus*

220 x [105] x 27 x 25 48g. T10, SV14

chromas

4966 ♀ " "

234 x 116 x 25 x 25 46g. lactating

chromas

4967 ♂ *Andinomys*

272 x 145 x 27 x 25 60g. testis 13, SV 22

chromas

4968 ♂ *Ph. caprimus*

282 x 148 x 29 x 26 62g. T12, SV15

La Cumbre, 3200 ft., 25 km NE Chumbicha, Prov. Catamarca

Dec. 20

*Leptotyphlops melanotermus*  
Worn snake

Snake was, dying sluggish on  
ground in early a.m.

4969  
shell only

4970

Guinea pig

under thorn fence in steel trap

Dec. 22

chromas

4971 ♀ *Sraomys* juv.

17g. juv.

16 km NW Chumbicha, 3500 ft., Prov. Catamarca

Dec. 24

chromas

4972 ♂ *Phyllotis darwini*

testis 12, SV 15

chromas

4973 ♀ " "

lactating

4974 ♀ " "

4 embryos 7 mm diam

chromas

4975 ♀ *Abodon*

uterine scars

17 km NW Chumbicha, 3750 ft., Prov. Catamarca

Dec. 26

chromas

4976 ♂ *Sraomys*

100g. T14, SV16

Cuesta de Zapata, 1875 m, 25 km NE Tinogasta, Prov. Catamarca

Dec. 27

chromas

4977 *Sraomys*

4978 *Ph. darwini* ?





122 km NW Tinogasta, 13,300 ft., Prov. Catamarca, Argentina  
Caught Dec. 28, Prof. Dec. 31

chromas

4979 ♀ Ph. subliminor juv. darwini.

no emb.

chromas

4980 ♂ Ph. darwini

T11 SV18

chromas

4981 ♀ " "

4 late fetuses

chromas

4982 ♂ albedor andium

T10, SV9

5 mi. E Yampuz, Canete Valley, 8340 ft., Dept. of Lima, Peru

pick up shell only. picked Aug. 21, 1921, cataloged Jan 31, 1922.

4983

Copestus rep

Recently killed along road.

I find no record of these numbers.  
I didn't go anywhere, and probably  
didn't collect. The missing numbers  
may have been dropped to make  
sure I didn't overlap when I  
resumed collecting.

The attached pages all relate to  
the standard trap lines and the  
acorn collections at Hastings.  
I don't know where these pages  
should go.



Pearson, O. F.

1971

Journal

Peru



Pearson  
1971

Papa León Tree, Dept. of Lima.

Aug. 18

Left Lima about 3:30 pm after 3 days of stupid negotiations re. a "fianza" for the car so we can go to Chilo etc. Numerous conferences with auto club, banks etc. Finally arranged a guarantee with Banco Popular (200,000 soles). Left Bob Jones un-numbered dolphin + seal skulls with Batanero's (700 Carillon) for packing and shipping. Tea with Manuel Pleguez yesterday. He says it has been a wet winter.

Camped ~~at~~ in the canyon above Papa León Tree. Lots of green. Numerous small moths flying at dusk, numerous big sphinx moths, heard crickets, saw fox, probably the larger one, who was squeezed up to about 50 feet. Saw night hawks. Drizzle continuous; didn't see the sun once in 3 days in Lima. Sphinx moths feeding on tobacco. Carol saw hummer.

Aug. 19

Wee drizzle all or most of night; plastic bowls left out had several tablespoons of water in each. Heard barn owl during night. Drip off car collected over one bowl of <sup>(2 cups)</sup> water in 30 minutes.

Drove to the study area south of Chilca at 10:30, wee drizzle most of way. The ground on study area was quite wet, damp down to more than 4 inches. Jope or something had wandered over much of the area. Garden #1 of weighed plants was near a disturbed area, and I'm not sure we found it but weighed plants anyhow.



Visited Tillandsia study area at 11:30 a.m. alt 370 ft.  
Garden #1 with jeep tracks a few feet away:

1	∞		
2	○	∞	18 9
3	⊙	∞	18
4	⊙	○	17
	⋮	∞	16

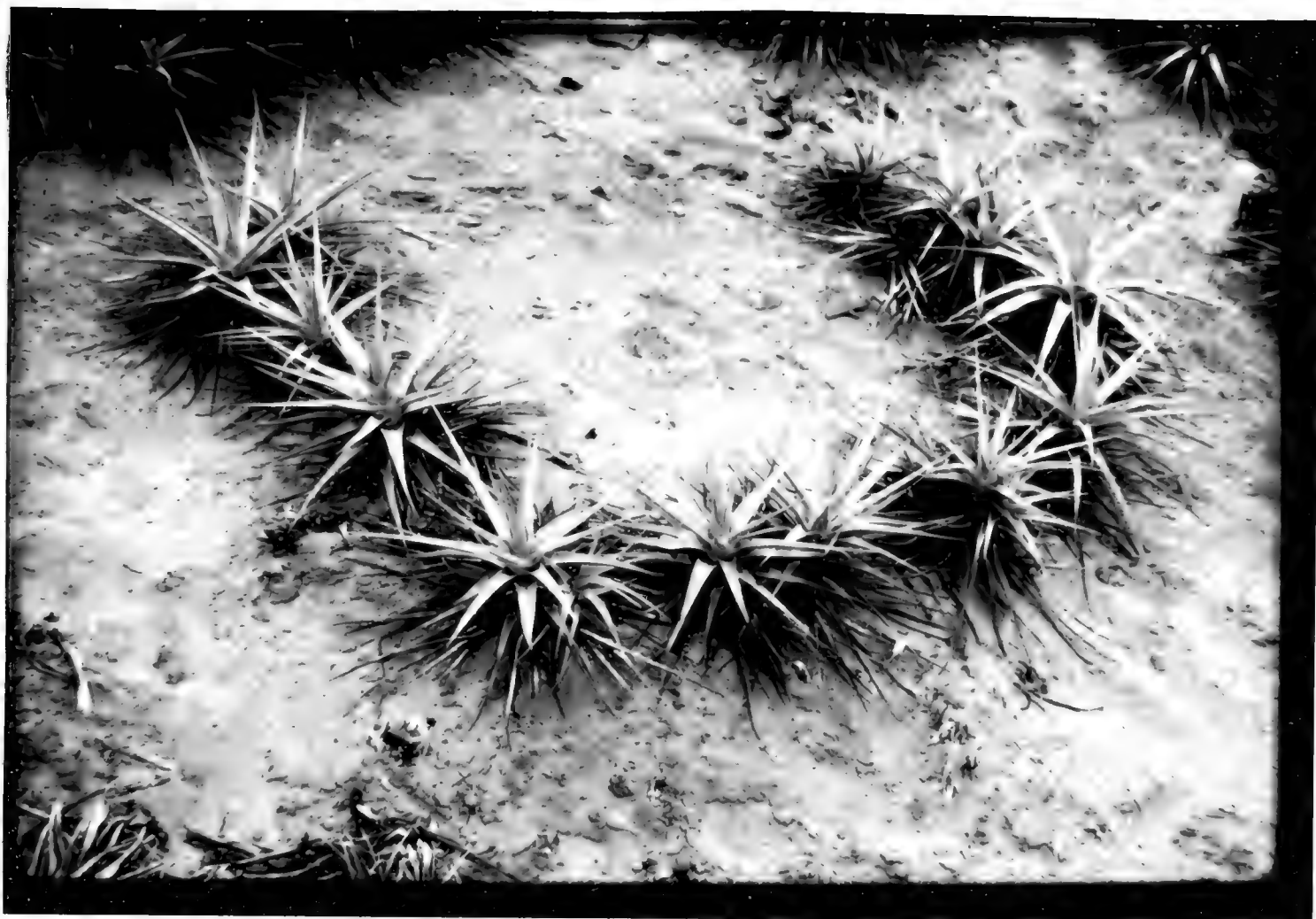
- #1 (maybe inflorescence) - 150 g small double, very dead remains of a larger stalk.
- #2 - 563 g - large single - 6 rows dead.
- #3 - 455 - small double (one broke off early)
- #6 - 575 - large double with old flower stalk and many seed pods under it.
- #7 - 345 - large single, 6 rows dead.
- #8 - 570 - triple with old seed head. 6 or more old leaves
- #9 - 593 - cabbage head. - lots of dead.

Garden #2

- |  |    |   |   |    |
|--|----|---|---|----|
|  | 11 | ∞ | ∞ | 20 |
|  |    |   | ∞ | 19 |
|  | 12 | ○ |   | 18 |
|  | 13 | ○ |   | 17 |
|  | 14 | ∞ | ∞ | 16 |
|  |    |   | 8 |    |
- #11 - 763 - large double, lots of dead
- #12 - 205 - med. single, 6 rows dead
- #13 - 385 - 7 rows dead, lowest  $\frac{1}{2}$  - alive, whole had been grazed.
- #14 - 360 - med. with smaller side, next to oldest living row was "grazed". Lots of dead
- #15 - 595 - large double, old old seed head, lots of dead.

100





*Tillandsia* Garden #2, before weighing. 8/19/71



*Tillandsia* Garden #1. 8/19/71





Tillandsia Garden #2, after weighing. 8/19/71



Pearson  
1971

- #16 - 445 g - 8 rows dead plus dead fruiting body on side  
#17 - 445 g - large single, 8 rows dead  
#18 - 640 g - ear tag is in 3rd row down of dead, at least 8 rounded  
#19 - 695 - triple, 10 rows dead  
#20 - 185 - small single, 9 rows dead ~~Ear tag is in~~

Garden #2 was fine, Garden #3 on myrral's trap line had been completely stripped; ~~the~~ all the plants for about 1 acre raked into long heaps. Saw Burhinus tracks, fox, small mice, hopping bird, sheep or goat, while weighing plants saw wild boar and acted like a flea, and two redwings (or something similar). at 1:30 wet & dry temps were 57°-56°.

Left at 1:30 pm and drove to 2800 ft above Zúñiga in the Cañete Valley. Had wet & sloppy up to about 2000 ft. (and cloudy - drizzly), but clear at about 2500 ft.

aug 20 Camp (after dark) at good spot along river with caña, pepper trees, willows, many mocking birds. Early evening clear but fog gathered about 9:30 - 10 pm, morning completely fogged. Parrots.

Drove up Cañete Valley, with stops for Carol's milkweed & bugs, arrived at our old campsite above the yungas turnoff but below the bridge, about 1:30 p.m., altitude <sup>8340</sup> ~~8340~~ ft. Stopped in the <sup>caña brava</sup> blooming scotch broom, pepper tree, columnar cactus, pastures, Spanish moss and at least 2 other species of Tillandsia (one of them small leaves with blue blossoms), agave, and yatropha "trees"



in bloom, lots of stone walls. The bridge, and its cluster of huts is known as Puente Tingo. Our camp is about 1 mi. downstream from it.

at 3 pm drove up through the gorge above the bridge and set about <sup>21</sup>~~25~~ *Shermans* (small) baited with oatmeal in stone walls right along the road. This is a little below our trapping site 2 years ago where myrmec caught *Phyllotis moysen*. Habitat was cultivated field, weeds, some bushes nearby, some tangles of thorn twigs, and a small unoccupied hut-shelter (scotch broom, peach trees, guard plants, weeds, *cardelabacactus*).

also put 14 small *Shermans* with oats across a log bridge along terrace walls, grass and weeds; this is about a mile downstream from the gorge.

Lots of small bats flying well before dusk. Ali set 6 traps along walls. Night clear. Saw one mouse while jacklighting.

aug. 21 Morning clear. Ali had 2 mice in her traps, two in the traps at the stone terraces below the gorge, and two above the gorge.

Rosetta to localities in this valley:

	<u>Spherometer</u>	<u>Elevation</u>
Camp along river, same as in 1969, recorded as so many miles from Yauyos	597.6	8,340 ft
Puente Tingo (bridge across Rio Cañete)	598.8	8,470
Terace trap line below the big gorge, log bridge	601.9	8,870
Trap line above the big gorge	604.1	9,080
Trap line of OP and AK and myrmec Georgy with <i>Phyllotis moysen</i>	606.0	9,220
Town of Alis	—	10,360





Leason  
1971

Left camp about 7 a.m. and ground up the valley, through the 1<sup>st</sup> gorge. Truck very tired and had to make running starts and get out and push simultaneously. Shopping and photo-ing in charming Alá, then on up over the divide (15,000 ft). Truck couldn't make it over top so an hour or more delay while I cleared <sup>gas</sup> filter and re-set the points (which fixed things considerably). Finally over the top, AK and APP with sirex. Lots of rich country, much of it heavily grazed with alpacas, llamas, and sheep. Little if any Festuca orthophylla and no tola, almost no yarito. Saw mouse cross the road. Lots of Bolivian geese, some loquaces, gulls, ibises. One swampy lake-meadow had 100? geese feeding on it (in pairs?) and apparently courting. Saw no tinamous although seemed good for Nototis.

Camped at 11,160 ft in a recently harvested grain field, set 19 small Shermans around heaps of ~~stones~~ in the steep fields. Some heaps with Barbieria and a stiff-needled bush with ericaceae blossoms.


aug 22 Clouded up overnight. a.m. 44°. my traps held 8 Calomys. Anita had 6 traps out and caught 2 Calomys. Drove to Huacaya for lunch then down to the Rio Mactara where we camped at 9000 ft in cactus-scrub near the river (very muddy). The land west and south of Huacaya is heavily used; fields wherever possible, grazing by sheep + cows + burros.

I put out small Shermans among walls + boulders, opuntia, tall cholla cactus, thorn bushes, other shrubs, and



closely grazed fields. Lots of small stones, some of which have been piled into heaps.

aug. 23

Light rain during night - enough to settle the dust. Temp at 7 am 50° cloudy. Vegetation is open, 12-foot cholla trees, 10 ft. candleabra cacti, willow-leaved shrubs, spineless *Berberis* with yellow berries this size , a spiny *Berberis*, a very spiny no-leaf bush (opposite ~~leaves~~ <sup>spines</sup>), small arborescent *Tillandsia*, agave, and other shrubs + rocks + grass. my 30 folding Shermans, 18 non-folding, caught 1 *Phyllotis* + 3 *Calomys*. Anita with 20 traps and 10 large Shermans + 10 small Shermans caught 2 *Phyllotis* and 1 *Calomys* (all in traps). ~~For~~ Carol caught *Calomys*.

Left about 8 and drove down the Valley as follows: Camp mileage 53.7, cross river 56.4, Mariscal Caacres 56.8 (8,650 ft), Lots of Coccol insects at 7,580 ft. Between where the road crosses the Rio Montano and H. Santa is some nice badland desert. Camped about 2 miles air line ~~from~~ SE of H. Santa, on a hill, overlooking the valley; under a pepper tree. Terrain is arid, lots of scattered large pepper trees, plowed fields, stone walls, and cacti of numerous sorts. Put traps along stone walls.

aug 24

a few sprinkles overnight. Day partly cloudy. my 57 small Shermans held 3 *Akodon*, 6 *Phyllotis*, 8 *Calomys*, Carol had 5 *Calomys*, 3 *Phyllotis*.



and 2 Akodon, ants in snaptape had  
1 Phyllotis and 2 Calomys, parrots feeding on mollé.  
Skinned all day. Biting sand flies yesterday and  
today.

Aug. 25

Cloudy overnight. Left at 8 a.m. and drove all day.  
Ayacucho at 9:30, camped between Chimbarras and  
Andahuaila at 7:45 p.m. miserable road. Crossed  
two ichu-covered "plateaus" without much grazing.  
no alpacas or llamas, some horses, cows,  
sheep. Lots of arid scrubby country. Chimbarras  
Valley & fields still charming; it is the site of my  
earlier photo of cottage & poplars & mountains. Camped  
after dark.

Aug 26

Woke in a pasture in a drizzly fog. Left  
early and drove through mist & clouds for a couple  
of hours ~~then~~ over the third ichu mtn. range, ~~then~~  
Reached Alvarado about 2 p.m.; saw flies at river,  
then up to the 4th cumbre. magnificent mountains.  
Camped at dusk overlooking a pueblo in a  
deep Valley (Cachara) and with snow-capped  
mountains above.



Pearson  
1971

Aug 27 Frost on ground & tent and ice in coffee pot outside; temp at 6:30 a.m. near 0°C. Took pictures of Carhara then off to Cuzco about 3 p.m. more of same kind of country. Cuzco different, probably because a center because of the proximity of large areas of level land low enough for cultivation.

Aug. 28 off for Mucchu Picchu by train at 7 a.m. Arrived 11 a.m. and reconnoitered for trapping possibilities and for salamanders. Everything rather dry, in fact the only water was in the few bromeliads up in the larger trees, and because of the extreme steepness of the slopes we were only able to reach one good <sup>big</sup> bromeliad and a couple of small or half-died ones. The good one contained water, debris, assorted spiders, ~~also~~ larvae, etc. plus one big dark iridescent earthworm. Just before dark set 46 small folding Sherman traps baited with crushed wheat. Most sets were on the bouldered brushy slope above the ruins (South). Vegetation was bamboo, orchids, bracken ferns, assorted shrubs waist to shoulder high, large scattered boulders, a little grass. Pretty dry, <sup>also & this along a</sup> weedy-grassy terrace wall.

Aug 29 Picked up traps at 6:30 a.m. Not one trapped. Trace of dew, but temperatures mild, ~~even~~ at night. Looked at Inca ruins and climbed to top of Hurray Picchu, flipping rocks looking for salamanders. Only zoological find was vampire bat droppings in a dark cave-like room under the tower in the ruins. Left for Cuzco 3:15 and 6:30. Lizards on top of Hurray Picchu.





Aug. 30 Having arranged to do shopping today (Monday) we found that it was a fiesta day, and couldn't even get car greased. Stained slides etc. Visited Sacshuaman.

Aug. 31 Left about 9 a.m. and drove to ~~between Santa Rosa~~ Chuguibambilla and camped on a flat bunch-grass plain. Stopped for lunch about 2 p.m. near a stream heated by hot springs. Numerous Cavia tschudii running among large bunches of a very spring grass. Caught a large ♂ Siolaemus under a stone, he was warmish and fat, but saw none outside in spite of the fact that it was sunny; altitude about 13,000'. Much threshing activity between Ureos and above Cheacupe. Biggest change from previous trips is the large number of cattle at both low and high altitudes. Cows where I would have expected alpacas & sheep.

Sept. 1 Night clear & cold; 15° F at sunrise. Drove to Hlave with various stops for fishing (none), shopping, and car lubrication in Juboca. Camped about 2 miles up river from Hlave amidst dry bare-plowed fields.

Sept. 2 Night clear, light frost, Temp 6 am 32° F. Drove to the school teacher cluster of huts about 10 miles from Hlave, but nobody could tell me anything of the fate of the students in my photo of 1955, although the teacher still lives next to the school (but he wasn't home).

Stopped at the campsite in the gorge of



to Rio Huerfano above Hda. Paucunani. Looked  
in caves on the north side and found one good  
Oreotrochilus nest (lined with ~~leaves~~ big fluffy  
down). no eggs. Chusquea blooming up at  
the hilltops but we didn't climb up.  
Sepidophyllum in full bloom. a passing native  
said the Reforma Agraria had taken over  
Paucunani and that they had very few animals there.  
Ali caught a 17" ad a 12" brown trout & D.

Drove across Pampa Andeata and saw  
no guinea pigs or sign of Ctenomys peruanus.  
Then beyond Maypucruz past pampas of  
pure Festuca orthophylla, pure Tetraglochin  
(or \_\_\_\_\_), and mixtures of the two, and  
pampas and slopes of Festuca and Sepidophyllum.  
Everything pretty dry. Camped at 14,000  
ft along a stream flowing away from the lake.  
Tola + Festuca + Pycnophyllum plus a  
swatthering of heavily grazed dwarf grasses  
Vicia grass along the stream. Several  
Ctenomys droppings but no fresh sign.  
Put out large & small Shermans.  
Moon one night short of full.

Sept. 3 Carol + my traps held 1 Chrocomys and 1 \_\_\_\_\_, ant's.  
1 Chrocomys, 1 Ph. boliviensis, and 1 Bolomys berlepschi. night  
clear, 14°F at 6 am, almost no frost (unlike last night  
near Hlave where car was heavily frosted, plus grass and



tops of dirt clods. Some ice on river. Vegetation here is about an equal mixture of Festuca orthophylla, Lepidophyllum quadrangulare, another yellow-flowered but open-leaved tola (more abundant than quadrangulare), lots of Raynophyllum, a few tiny spiny Margaritopsis or Tetraglochin only a few inches tall, and a sprinkling of heavily grazed short grasses. Ctenomys is here, eating branches of the Lepidophyllum; Puna mice, ducks.

Left camp at 11, which was 1 mi NE of Challapalca and the Rio Mauri. Many two-troop latrines there and the divide, onto and, with drifting sand in places. The divide is really double, both about 15,400 ft and 8 miles apart. The eastern pass is almost totally barren, much good gareta between the two. Saw one vicuña and some droppings, no tinamous or vicuña. Lots of good tola + Festuca east of the passes, mileages and altitudes as follows:

	<u>speedometer</u>	<u>altitude</u>
Rio Mauri	653.3 miles	13,880
Pass #1	662.0	15,420
Pass #2	670.6	15,380
Beison Pampa above Tarata	685.9	12,900
Lower Pampa	687.7	12,600
1st Coctue (Cachabamba)		12,350
Thorung Buzha		12,250
my Camp from 1951	692.5	11,540
Encolophtes		11,200
mollé		10,400
Tarata	699.2	10,320



arrived Tarata about 1:30 p.m. It has been "occupied" by the army, which will make finding a headquarters difficult.

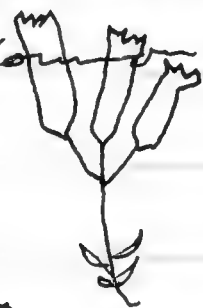
Sept 4 Morning in Tarata looking for a house to rent, so Luke then drove up the hill to our old camping place that we used to call 1.2 miles N Tarata. From topo sheet looks more like 2 miles N. Elevation still due north (checked tonight by Southern Cross). Lots of hummer flowers in bloom and at least 4 species of hummers here, plus Diglossids. Carol saw at least 19 species of birds here, I skinned and Anita & Carol put out traps (45 small mammals and 70 museum specials).

Sept 5 2 mi. N Tarata, 11,500 ft. [ $\approx$  1.2 mi. N of previous trip]. Temp at 6 a.m. 36°. Anita & Carol's traps held only 1 Phyllotis magister and 1 Ph. darwini (and 1 toad). Skinned and reloped and watched hummers along the assequia. 4 or 5 species right in camp, plus Diglossids. The hummer bushes follow the assequia, and the hummers don't seem to utilize the bushes on the dry slopes. Photos of "montane vegetation". Vegetation in photos knee-high to waist-high bushes such as Baccharis, a very slender small-leaved one like Lepidophyllum quadrangulare, a long-leaved (toothed & slender) with puffy dandelion seed, fluted cactus up to 6 ft tall with large yellow bloom, a small tree cholla up to 5 ft., lots of tiny jumping cholla only a few inches tall with spherical joints, a few tiny opuntias, a bush with leaves up





to 7 ft. tall, greenhorn up to 6 ft, and the big red-tubed bush of the aseguia up to 8 ft and even with a few blossoms. The "soil" is very stoney with almost no soil, scattered weeds & grass, especially ~~common~~ a 5-inch high weed with empty seed pods.



Everything very dry, also Ephedra.

along the aseguia the bushes go up to 15 ft: greenhorn, the crimson flowered bush with  $2\frac{1}{2}$ " corolla, a red-flowered (tubular) malletoe, and an orange-flowered climbing bush with compound leaves and tendrils at the end of each leaf. also grass and even ferns along the aseguia, also an 8-foot bush with flower buds like cactiflower.

correction: The hummers do work away from the aseguias.

One tree along the aseguia is 15 ft tall and has a trunk 2 ft. in diameter; has small leaves like Polykles and blossoms (white)



life size

Sept 6

Temp. at 6:30 a.m. was  $25^{\circ}$ , no frost, my traps, 47 small ~~mouse~~ <sup>shrews</sup> and 12 large ~~shrews~~ <sup>shrews</sup> set in good places along Terral walk caught 3 Bolomys berdinschii (2 at one hole and one at the next set) and one Phyllotis. Anita. Anita's traps along the aseguia (8 large shrews, 3 rat, 19 mouse species) caught 1 Akodon boliviensis (in coarse green grass along aseguia, 1 Andersonia, and 3 Myiophila (none in rocks, one of them in the coarse green grass).



I summed and left camp about 10 a.m. to return to Tacna to negotiate for a house. all day negotiating ... and waiting.


Sept 7

more negotiating, then off to Tacna to talk to the owner of the house of our choice: Sr. Daniel Savala, who turns out to be an aged man in a living room furnished with shiny vinyl furniture, black velvet paintings on the wall, a shiny porcelain urinal on the coffee table. Buen éxito.



Stopped at the Tacna Mercado etc, left at 5 p.m., camped a couple of miles north in Tillandsia desert. Set one pot trap (tiny pot traps everywhere) and about 25 museum specials just before dark.

a Prof. Gran? and his wife, encountered in the middle of the Tillandsia at noon, an expert on Bromeliads, says this is the type locality of this Tillandsia, but none are in bloom.

Sept. 8

night cold, breeze from north. we are 3 mi N Tacna. The Tillandsia, narrower leaved and tighter packed than latifolia, are in very distinct crescents  aiming south. Our campsite pitches down slightly toward the south, but <sup>on</sup> a rise to the south of us the crescents still aim south uphill. Only the terminal heads are living, the older side branches are dead, no "seedlings" here, or young ones, no buds or blossoms.



or even signs of old seed pods. Soil is powdery, completely dry, only a few inches deep over clay. Other plants include numerous small fleshy rooted succulents , a clump of small spiny cacti, a few scattered  tufts of the brick-red steel-weed *Lobelia*, and some powdery *Lobelia*. Lots of arthropod holes in the ground, mostly empty, but a few with spiders, dead beetles, and one with 2 live gophers. Dead snail shells common, 2 live snails stuck to side of a rusty oil drum. *Gophers* not uncommon under tin etc at trash heaps. Lots of tiny fox tracks, large dog tracks, *Burhinus* tracks (rare). Under clumps of *Tillandsia* we found only a few spiders; I saw no silverfish here although Carol saw some yesterday a little farther up the road. Found one large scorpion tail. Carol saw a hummingbird. Fox droppings contained mostly scorpion, snail shell, insect legs, hair, and one unidentifiable small rodent. The hard layer under the surface powder is covered with white. Even on side hills the crescents face south, city was in fog at 6:30 a.m. arrived Tarata noon and moved into house no. 35 28<sup>th</sup> of July.

Sept. 9 Cloudy until about 8:30 a.m. Skinned and house-cleaned at  
Sept 10 Tarata. House cleaned etc., then left for mara arriba at 2 p.m. camped at "Benson's Pampa" 3 p.m. (see his photo 8/5/68). We make it 12,900 ft., 6 km NE Tarata, named appropriately on the topo sheet "Queñoplasa" because *queñoa* (*Polylepis*) is the dominant vegetation and there is a lot of harvesting of it hereabouts. I put out just before dark 41 small Sherman baited with a mixture of cracked corn and



natural, 2 large Shermans, and 2 <sup>steel</sup> jump traps. The ~~jump~~ 6 large Shermans were at a road-retaining wall where there was a large accumulation of viscacha-sized droppings. All sets were at talus below road or retaining walls.

Jacklighting at 8 pm saw nothing, but one of the big Shermans had a big abrocoma in it.

Auto put out museum specials and small Shermans at Queña clumps and rocky places.

Sept. 11

Night clear + calm,  $-4^{\circ}\text{C}$  inside car at 6 a.m., ice in bucket. Auto caught 1 andersoni, 3 Ph. magister, 1 Ph. darwini, and 2 Bolomys berlepschi - all except 1 Bolomys in museum specials. I caught darwini, magister all day skinning. The darwini look like rufestris. Sunny all day. Put out 25 large Shermans along road walls below camp, baited most with cracked corn + oats + Lepidophyllum blossoms. Also left the abrocoma trap in place, and the pit trap. A few feet from the abrocoma trap this morning was a Ph. magister and this evening at 8 pm a Bolomys berlepschi was in the abrocoma trap in the wall.

Sept 12

My traps held 7 mice: 1 Bolomys berlepschi (in the abrocoma trap) Ph. darwini, Ph. magister. Viscacha tracks in the road below camp. Auto with 20 large Shermans among "natural" rocks, greñes etc north of the pampa caught 1 Bolomys and 1 darwini. Temp inside car in my skinning tent at 6 a.m. was  $-6^{\circ}$ , temp. outside  $-2^{\circ}$ , ice in pots.





camp is at the edge of a "pampa" on a narrow ridge ( $\frac{1}{4}$  mile wide) between two very steep deep canyons. In the center of the ridge is a sloping, almost bare "field" with nothing growing more than a couple of inches tall, perhaps 4 acres. Around it is a Polykopia "forest" - really bushes up to 10 feet tall but some with "trunks" up to 6 or 8" diam. and big enough to attract woodcutters. These are clearly dominant, bare & gravelly & stoney in between them, but with numerous blooming Lepidophyllum quadrangulare. Also cushion cacti, <sup>orange flower</sup> tiny grass tufts, low Ephedra, <sup>Baccharis bushes</sup> flush leafless dandelions (in bloom), and a grey hairy all very dry and heavily grazed. On both the north and south faces of the ridge are more bushes of composites, the red-tubed Potamogeton flowers etc., plus grass clumps, less heavily grazed. The seemingly barren pampa is heavily used by llamas, birds, and a large lizard lives under a loaf-sized rock in the middle of it. At the upper edge of the area a few small yareta come in.

Sept at 1 km for mas arica. Polykopia goes much higher, not much bunchgrass. Then over the first summit and camped at 13 km NE Tarate, 14,700 ft amidst gorgeous yareta - Lepidophyllum garden at base of an igneous cliff. Put out 25 large Sherman baited with oats + corn + Lepidophyllum flowers + Sesuvium blossoms. ants put out 40 large Sherman among big boulders.

Night clear.  $-2^{\circ}$  at 7 pm. fogging at 8 pm saw one viscacha.

Sept 13

Blustery wind came up late during the night. Temp at 6 am outside was  $+1^{\circ}\text{C}$ , inside car  $-2^{\circ}$ . My traps held



1 Phyllotis darwini, auto bed, darwini and 2 abdomin  
condinus. One of these was standing in front of the  
trap and was chased into it; about 7 a.m.

The vegetation here is almost pure yareta and  
Lepidophyllum quadrangulare, with a few mats  
of Pycnophyllum and a few crevice plants. Saw  
<sup>isolated</sup> vescica + Geolaemus (one). Carol climbed up to  
a cave above camp and found 2 Oreotrochilus nests,  
one of them being visited by a female (but too  
high to check contents). Chupiragua nearby. She  
also scared a ♂ Oreotrochilus out of a crevice at dusk.

Had a dandy yareta campfire last night, completely  
silent, and still coals in a.m.

About ~~noon~~ <sup>nine</sup> a.m. packed up and drove  $\frac{1}{4}$  mil  
down the road to the spring and set traps for  
Amblyonyx boliviensis and Peromyscus. Saw 3 or  
4 Amblyonyx sunning, and some Seiuroadenophylloids  
that had been "barked", but probably the work not  
of Peromyscus but of Amblyonyx. Trapped 2 by 11 a.m.,  
started for Tarata and, after a few stops, arrived  
1 p.m. Squashed in the road at our campsite ~~was~~  
at Quesñapaza (6 km NE Tarata) was an abrocoma

Sept. 14 Tarata.

Sept. 15 Tarata. Zonotrichia capensis sings occasionally, but in a  
half-hour walk in the "suburbs" you may only hear them once  
or twice. Only evidence of breeding birds I have seen so far  
was a dove nest with parent + 2 eggs near the river north of



gubosa. Carol probably saw nesting Oreotrochilus at 13 km NE Tarata Sept. 12.

Sept. 16 Walked up hill east of town. above irrigation, the bushes are fairly thick, almost as "lush" as at the aseguia camp at 11,500 ft. Very dry and, in the absence of aseguia, hardly any birds. Caught a "fat" striped Liolanthe and saw several others. minimum temp. under shelter in our patio was  $38^{\circ}$ ; light frost on green alfalfa leaves in fields.

Sept. 17 Left 9 a.m. for desert camp on Taura road. Had expected to camp amidst the big hydra cacti but when we got there we were discouraged by scarcity of other vegetation, so moved back up the hill to where the yellow flowered Cereus? is dominant (although a few hydra cacti are visible on the slope to the west (and above) us. Laid out a trapping grid but was caught by darkness before I could get more than about half the traps out. Saw a large lizard, parakeets, 2 or more spp. hummers (including patagona), doves, a yellow-bellied finch, and a small furnarius may have heard barn owl.

Sept 18 Night clear, calm, min  $41^{\circ}$ . Grid has 15 water spacing. Ear-tags and released Lh. darwini as follows at 7 a.m.:

A0 ♀ #401+402 vagina not open	B0 ♂ 406 half-grown
A3 ♀ 403 adult " " "	C5 ± ♂ 407 old
A6 ♂ 404 " " " "	D4 ♂ 408+409 ad.
A9 ♀ 405 " " " "	F5 ♂ 410 ad.
C3 ♂ rt. ear notched PM adult	E2 ♂ RP5 cut half-grown
E0 ? left ear " " "	

Three of these were discovered in the traps in PM (on good slope);









Pearson  
1971

Sp gather below "brush" x

Sept. 19 Night clear & calm, minimum  $42^{\circ}$ ; Ran traps at 6:30 on grid:  
caught 3 new ones and 3 recaptures:

All ♂ ygial #411

recap at D9 ~~8~~ 404

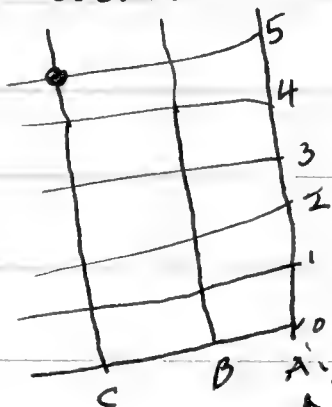
B10 ♀ ad closed 413

" ~~A~~ A 10 ♀ 405

F8 ♂ yg od. 414

12 11 B2 8 juu 406

In addition airta snaf-trapped 3 tagged ones off the area as follows



distance travelled  $4012 = 62 \text{ m}$

$$4039 = 132m$$

$407 \sigma = 111 \text{ m}$

$$409 = 60 + 60 = 120 \text{ m.}$$

Aruta had 63 snap traps out and caught 12 Ph. darwini and 2 tails.  
my 7 traps including two jumps at 2 inches in cliff high above  
study area caught 2 Phyllotis. One of these was tagged at D4  
#409 ad ♂. Released him at D4. Released tagged tailless at Culbert.

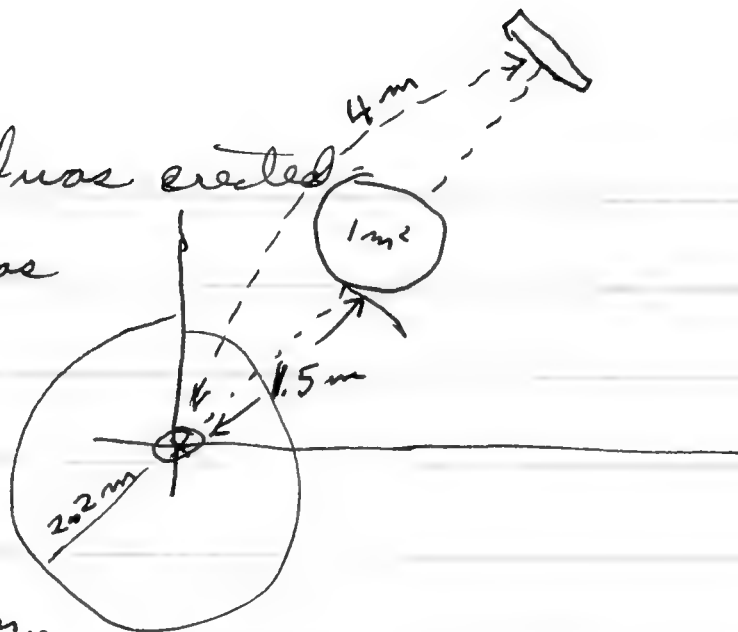
One trap with a mouse in it in the dry wash had been pestered by a fox. Three sets of fox<sup>?</sup> droppings contained respectively Phytolacca, viscous fur (or abrusum<sup>?</sup>), and pure mallow berries barely digested.

Spent the day quantifying plants. Used every other stake of the grid as a reference point (= 45 samples). To avoid trampled space around the stakes (held up by rock cairns) we measured diagonally 1.5 m and dropped the 1 m<sup>2</sup> hoop onto its <sup>nearest</sup> periphery 1.5 m. from the stake.



On the same diagonal a board was erected 4 m from the stake. The board was divided into 3 "altitudes":

$\frac{1}{2}$  m, 1 m, and 1.8 m. Lighting at the board from the stake at respectively  $\frac{1}{4}$  m eye level,  $\frac{3}{4}$  m,



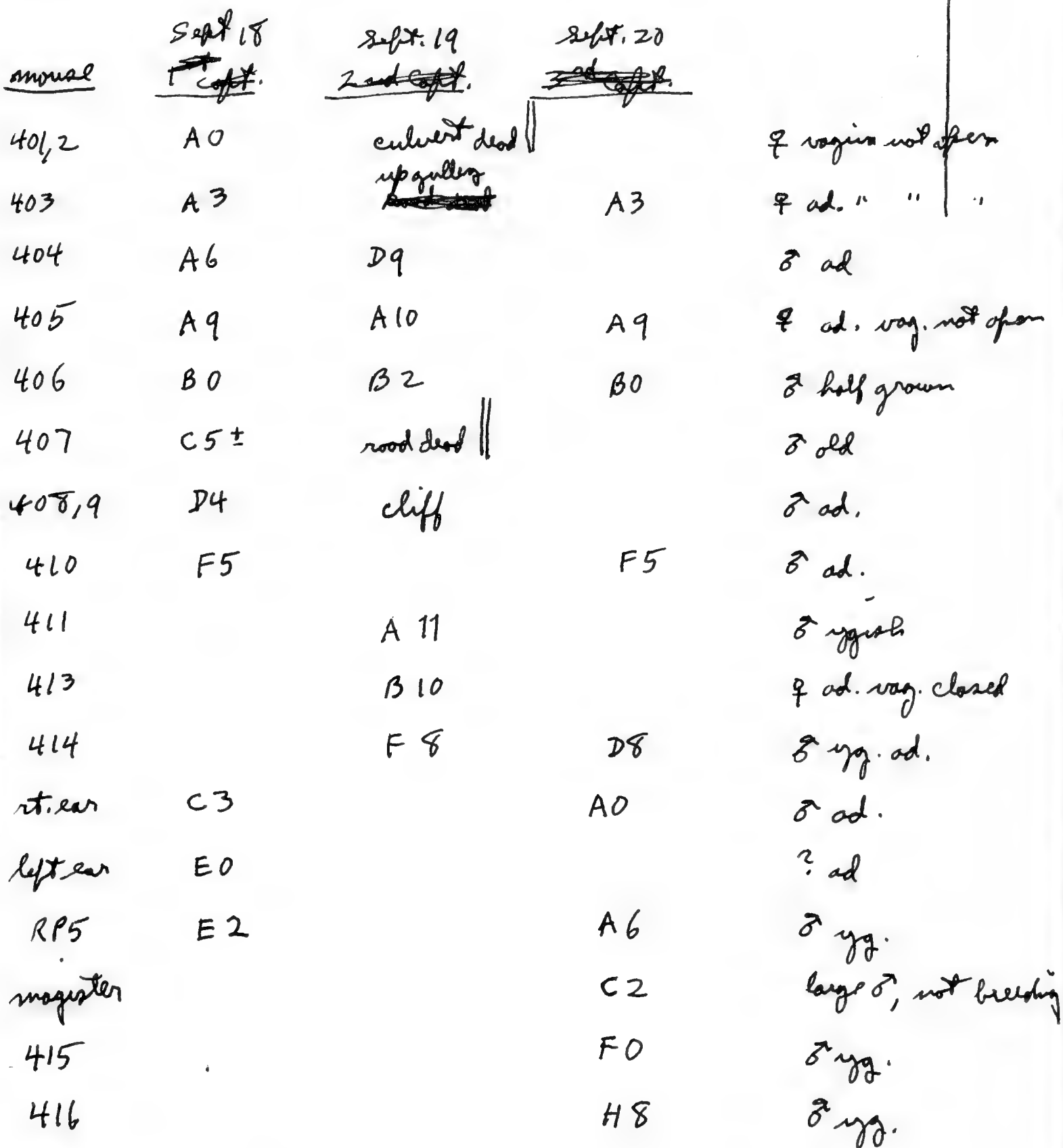
and  $1\frac{1}{2}$  m, the percent of each board section obscured by vegetation was estimated. Within the hoop the % of ground covered by vegetation was estimated, broken down into the dominant three species plus a total coverage. Finally, the number of hidey holes within 2.2 m of the stake were counted. a hidey hole is a dark safe retreat where a mouse could not be reached by people or poles.

Jacklighting saw a bat hunting at 8:15, temp 48°. Flew & looked about like antrozous. Carol thought she heard one last night. No hawks or owls yet.

Just before "sunset" saw a small brown unstriped lizard a few feet off of the study area. Maybe Liolaimus athletus but no stripes visible; In dead brush pile.

Sept. 20 Night calm & clear. minimum . It had hosed out. Wind blows up the valley in daytime, down at night. Anita had about 68 snap traps out and caught 1 marmosa, 1 Bolomys berlepschii, and 11 Phyllotis. Yesterday surely a mouse, today maybe 1, and a juvenile with small ears. The marmosa was in a particularly brushy part of the dry wash, about a half km. below the study area a shallow ditch has been dug and contains 10 or 20 gallons of water.





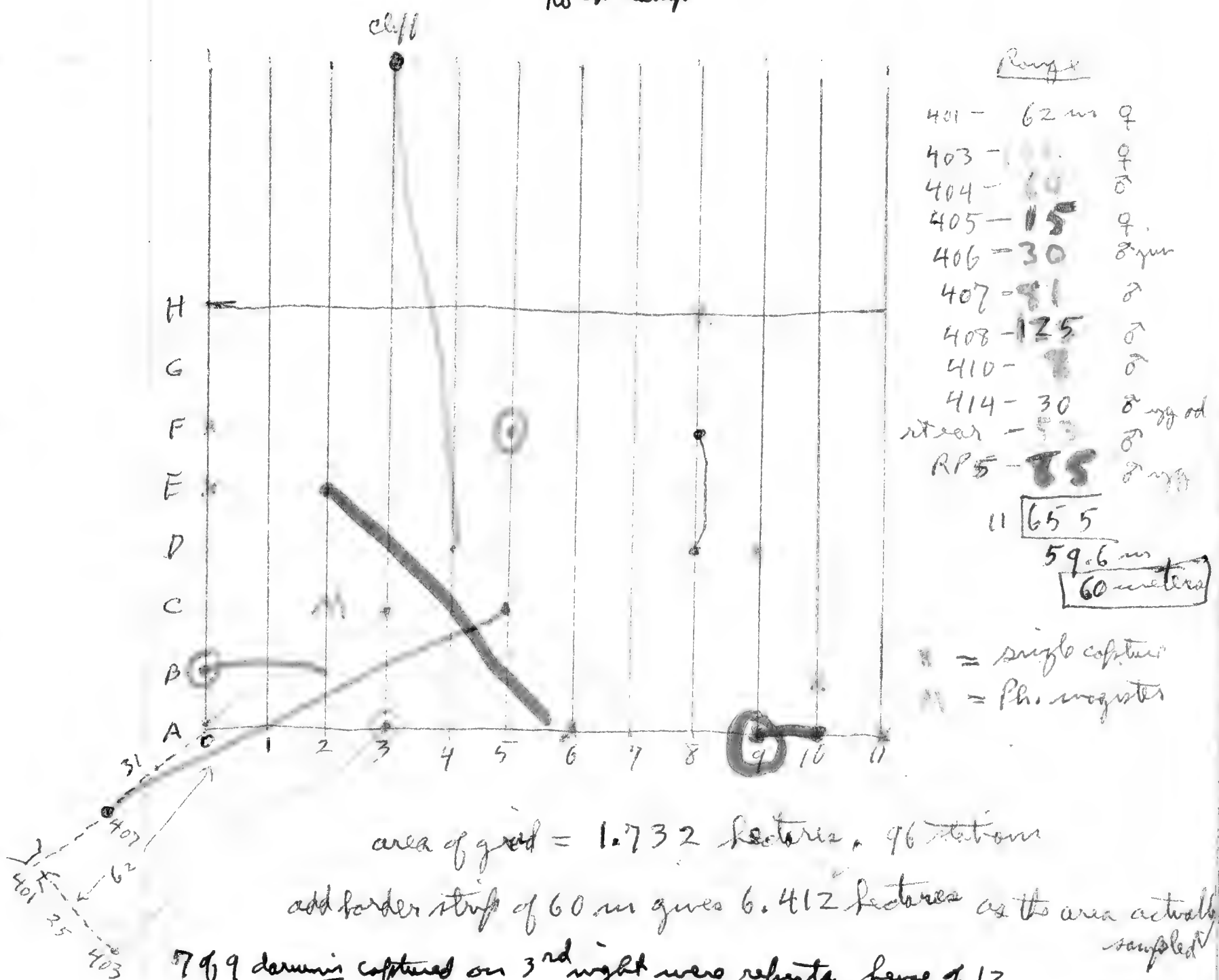
$1, 1, 1, 2, 0, 1, 0, 1, 0, 0, 0, 0, 0, 0, 1, 1, 2$   
 $0, 1, 0 = \frac{33}{41} = 0.80$

no. of holes at stakes with rain: 0, 1, 1, 1, 2, 1, 15, 20, 3, 1, 1, 0, 0, 1, 0, 2, 2

$\frac{0 + 1 + 1 + 1 + 2 + 1 + 15 + 20 + 3 + 1 + 1 + 0 + 0 + 1 + 0 + 2 + 2}{20} = 2.60$



# Rock camp



Range		
401 -	62 m	♀
403 -	62	♀
404 -	62	♂
405 -	15	♀
406 -	30	♂ juv
407 -	81	♂
408 -	125	♂
410 -	7	♂
414 -	30	♂ - yg ad
near	53	♂
RP5 -	75	♂ yg
11 65 5		
59.6 m		
60 meters		
• = single capture		
⊗ = Ph. magister		

area of grid = 1.732 hectares, 96 stations

add border strip of 60 m gives 6.412 hectares as the area actually sampled

7 of 9 darwinia captured on 3<sup>rd</sup> night were repeats, hence of 12 available for capture  $12 \times \frac{9}{7} = 15$  mice in population

+ 2 killed off area  
total 17 darwinia on 6.412 hectares = 2065/ha.

actually caught on the area 16 darwinia and 1 magister. <sup>0.58 per ha</sup> 11 ♂♂ darwinia and 4 ♀♀ ad  
For age and breeding data, all except one of the mice caught nearby were saved. See AKP and OP notes & catalog. a litter of juvenile magister were trapped nearby. also one maromosa in thick bush in the dry wash a few hundred yards downstream, and a Bolomys bealephani on the side of the dry wash near a thorn? bush. Other mammal fauna: bat, bat (dug under trap containing mouse), cat. One Ctenoblepharis seen on area, another species seen nearby.





The study area at 10 kms Tarata, 10,000 ft., is about as low as seems profitable to study; any lower is too barren. It consists of two habitats: dry wash (31 stations) and upland (65 stations). The rocky river bottom contained tobacco, broad-leaved shrub, some other bushes, a few cacti, and a few scattered plants such as tomato, One patch of molle (no fruits). The upland was columnar cactus (yellow flowered), crumby-leaved bush, beckeria-leaved thorn scrub, and a few other bushes, plus lesser herbs such as capsulated annuals, break-off weed, the reddish succulent from the Tillandsia desert, dwarf Tillandsia, and, especially on the upper slope, a few tufts of grass, also spherical joint cactus (orange flowers), ~~but not~~. Two departures from "natural" are a stone retaining wall below the road near one corner of the grid, and the presence of a distinct network of grazing tracks on the hillside, another complication is the water hole a half-kilometer downstream. The location is at about km 62 from Tacna. The tobacco, broad-leaved shrub, and tomato look vigorous, but the cacti, in spite of bloom, look in sad shape and the crumby-leaved plant practically dead (except in a few spots where it may have received water). The red-flowered mistletoe looked healthy.

Returned to Tarata in PM.

Sept. 21 Tarata

Sept 22 Tarata. Lots of hummer activity around the big red-flowered bush at the big rocks south of town at dusk. 3 spp. Too many hibitzers to set traps.



Sept. 23 Tarata,  
Fri

Sept. 24 Left Tarata 8:15 for aseguia camp (2 mi. N Tarata, 11,500 ft), and spent the day setting up a 6 x 15 row grid with 15-meter spacing. It includes quite a bit of aseguia and some long-abandoned terraces, but only about 30 meters of good mouse wall on the study area. Several Ziataenium alticola seen around camp and a few on the area. Most of the area is on top of the ridge (here about 400 m wide), but rows E and F are on the steep north-west facing slope. Evening calm, clear, no wind, moon 3 or 4 days old.

Sat.  
Sept. 25 Minimum 31° F. Breeze came up during night, blowing down canyon from the east. Ran traps at 6 a.m.: 13 mice (including a magister that escaped without tagging at 1).

One set of fox? droppings contained bird feathers, mouse hair, grass, a few large fragments of bone, cactus? skin.

Saw only 1 lizard all day, a <sup>small</sup> L. alticola, at 5 set under the cliffs up the aseguia a half mile and watched a cove to see if lizards entered; 6 or 8 flew up canyon and kept right going. Many other birds also flew up canyon at dusk.

Put about <sup>10</sup> ~~12~~ large Sherman south of camp to pick up home ranges of tagged individuals or live and downings. Anita put 38 MS and 4 Sherman up the aseguia in green grassy and then rocky.

Drove up the hill in afternoon to get food for Coptocercus. First Polydora at 12,000 ft., first appreciable Lepidophyllum quadrangulum at a pampa at 12,600 ft.

Sept. 26 Clear + calm until about 5 a.m., then breeze. Minimum 27°. at 2 PM 65°, 5" under flat ground 20°C. Anita caught P. magister, P. darwini, Abodon boliviensis



Acqua

2 mi. n. Tarato, 11,500 ft

Sept 25  
Sat.

26

27

28

Number	Sex	Age	Species	Foot	Notes	Left ear	Right ear	Left eye	Right eye
417	♀	ad.	<i>Andinus vag not open</i>	A3					
419	♂	ad	<i>Ph. darwini</i>	25½	A8				
420	♂	ad.	<i>magister</i>	31	A9	29m S A10	A11		A10
421	♂	young	<i>darwini</i>		A12				
—	?	ad.	<i>magister</i> (escaped)		C1				
423	♂	huge	<i>magister</i>	30	C6		E3		D5
424	♂	ad	<i>darwini</i>	25	D4	C4	D9		B5
425	♀	ad	<i>darwini</i>	not open foot 24	E4	D5	C6		
426	♂	big	<i>magister</i>	30	E14		D15		
427	♀	ad	<i>darwini</i>	not open foot 25	E15		E12		C9
428	♀	ad	<i>magister</i>	not open foot 30	F13		E13		F13
429, 430	♀	ad	<i>darwini</i>	not open foot 23	F5	C11			C11
431	♂	ad	<i>magister</i> - <i>darwini</i>	26+23	F4	B4	F4		D2
432	♀	ad	<i>darwini</i>		A14				
433	♂	"	"	foot 24	B15				C14
434	♀	"	<i>magister</i>	not open foot 30	B12	A15			B14
435	♂	"	"	foot 24	C15				D6
436	♂	"	<i>darwini</i>	foot 26	D3	E4			
437	♂	half-grown	"	foot 25	D1				D3
440	♀	ad	"	foot 25	F7	F8			F7
444	♂	ad	<i>darwini</i>	tagged 100m S A10					A14
445	♂	ad	<i>Bolomys berlepschi</i>	(between 6:30+8 am)	C9				
446	♂	ad	"	during day	C3				
447	♀	ad	"	"	F2				F1
448	♂	young	<i>Ph. magister</i>	28 foot	A3				
449	♂	ad	<i>magister</i>	foot 30	F15				E15
450	♂	young	<i>magister</i>	foot 27x22	F11				



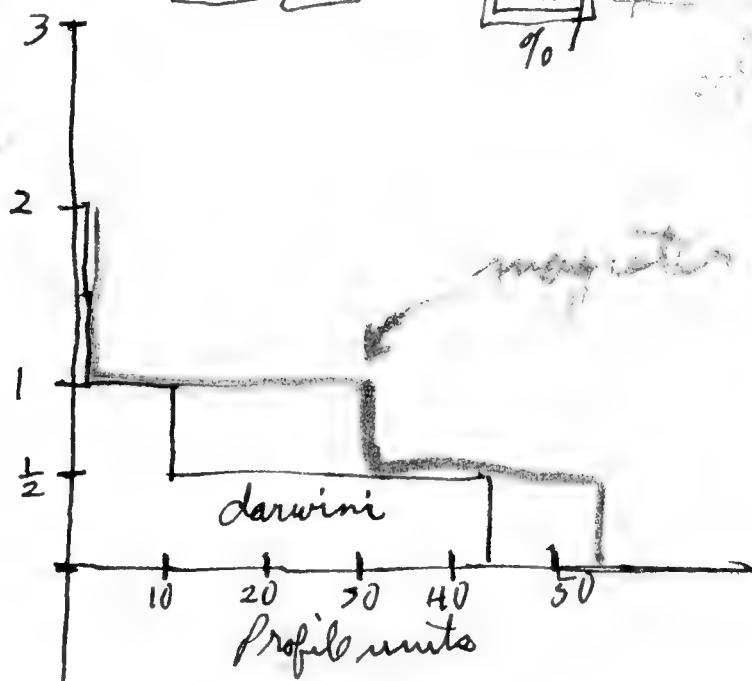
Acquia Camp  
Comparison of darwini  
and magister sites

Parwini <del>Red</del>	darwini hickholes	vs. magister Profile				hoops cover	magister					hoops cover
		$\frac{1}{2}$	$\frac{2}{2}$	2	3			$\frac{1}{2}$	$\frac{2}{2}$	2	3	
A8	2						A9	4	70	0	0	38
A12	0						A10	3				
D4	2	70	0	5		50	A11	4	15	3	0	17
C4	5						C1	1	15	5	0	16
D9	3						C6	0				
B5	0						E3	7	70	2	0	53
E4	4						D5	8				
D5	8						E14	3				
C6	0						D15					
E15	2	30	40	0		15	F13	3				
E12	0						E13	5	35	25	0	27
C9	5	15	0	0		4	B12	0	95	10	0	32
F5	4						A15	3	25	0	0	13
C11	0	50	3	0		50	B14	3	90	60	2	35
D12	1	50	1	0		47	C15	0	100	85	10+5	50
F4	3	90	5	0		65	D6	0	35	45	0	10
B4	3	15	0	0		25	A3	0	95	95	30	3
D2	0	45	0	0		32	F15	4				
A14	2						E15	2	30	40	0	15
B15	2						F11	3				
C14	4											
D3	4											
D1												
F7	1											
F8	3											

19	53	12	67.5	37.0	15+5	30.9
	2.79		56.2	30.8	1.7	25.7%

	25	40	0	45
9	390	89	9	5
	43.3	9.9	0.6	
				90
				37.0

24	58
	2.42



add A1 and A3

A1 5 45 40 30  
A2 0 25 15 10  
2.76 59.23 36.78 4.22 41.8





Sept-28

(cont.)

no number Abodon boliviensis (dead)

A7

new untagged Ad Ph. darwini foot 27

C4

Darwini home ranges based on 31 captures of 7 ♂♂ and 4 ♀♀: 8, 77, 42, 95, 110, 60, 21, 21, 30, 15, 115 average 54 m. Study area (1.57 ha) plus border strip of 54 m = darwini study area of 5.82 ha. Simons index: 13 tagged + available, 4<sup>th</sup> night caught 9, 8 of which were tagged ones =  $\frac{14.6}{13} = 2.51$  per ha

magister home ranges based on 19 captures of 7 individuals (5 ♂♂ and 2 ♀♀): 30, 54, 21, 15, 47, 138, 15 = average 46 m. Study area (1.57 ha) plus border strip of 46 m = magister study area of 5.04 ha. Simons index 9 available for recapture, caught 6: population of 9 =  $\frac{16}{9} = 1.79$  per ha

Bolomys tereticaudus: 3 caught on area. Call it  $\frac{3}{3.65}$  per 1.57 ha. (border strip 30 m)

Andinomys: 1 caught. With border strip of 30 m =  $\frac{1}{3.65}$  per 1.57 ha

Abodon boliviensis: 1 caught along aqueduct.  $\frac{1}{1.57}$  per 1.57 ha.

also seen nearby: small bat, 3 lizards on area, probable toad, probable fox, skunk, cat, frog

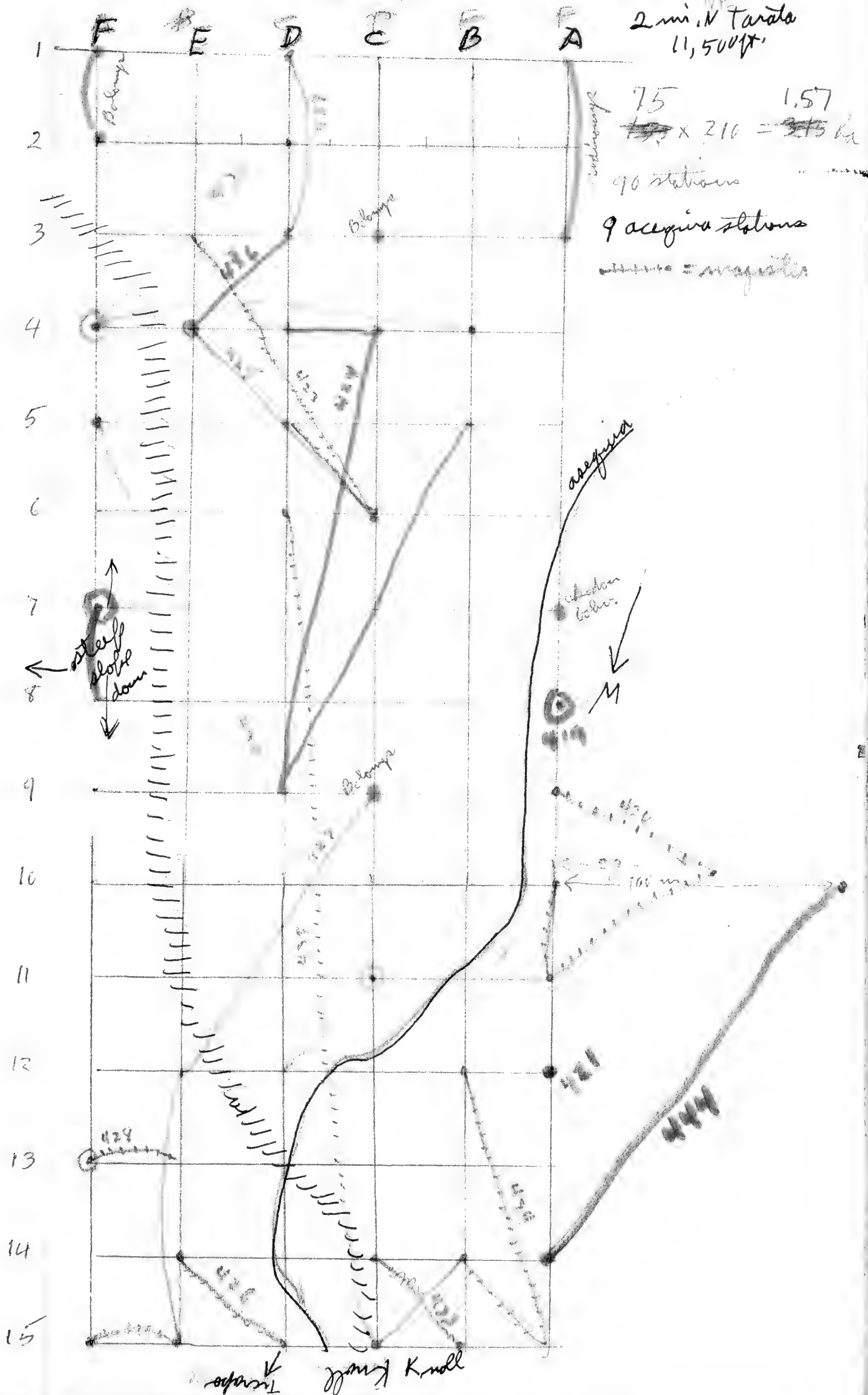
no. of hideholes at stakes without mice: 1, 0, 0, 0, 1, 2, 3, 2, 2, 2, 0, 0, 2, 0, 0, 2, 0, 0, 3 =  $\frac{20}{20} = 1.00$

no. of hideholes <sup>at stakes</sup> with mice: 5, 0, 5, 4, 4, 3, 3, 0, 3, 1, 1, 5, 0, 0, 1, 0, 2, 0, 7, 5, 2, 3, 3, 0, 2, 3, 0, 2, 2, 0, 5, 0

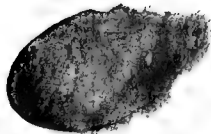
41, 3, 8, 4, 4, 0, 3, 4, 3, 3  
C14, D9, D5, D3, E4, E12, E14, F15, F13, F11,  
F7, F5, F1 =  $\frac{112}{45} = 2.49$



2 mi. N Tarala  
11,500 ft.



0



(all in green grass along asequina), and Bolomys berlepschii (all in dry stoney places).

Did plant analysis on study area. I feel it does not represent enough big Cereus, broad-leaved shrub, and Baccharis. Saw another lizard on the area (= total of 2). Kids report frogs in the reservoir a half mile down asequina.

Sept. 27 Night clear, breeze just before dawn; minimum  $26^{\circ}$ . 5" underground at 8:30 a.m.  $13^{\circ}$ . Walked down to reservoir maybe 500 yds below camp. Toad 4837 under rock about 20 ft. from reservoir; also a nest in a 2" deep sunny place with a rope of eggs about pencil diam., and at least a meter long; yolk black. Also saw about 5 frogs in water at edge of reservoir, caught one (4838). Carol saw a small bat over reservoir at dusk but not caught.

Sept. 28 Min.  $24^{\circ}$ , quite blustering 3 to 6 a.m. Moon half full, an old pickup fox-dog skull on area has measurements: incisors - basipharyngeal notch 170, zygomatic breadth 103, width <sup>of rostrum</sup> across PM 36; 3 PM and 3 M, length of tooth row 1' to M 100. Slight crest.

Ice on asequina seep and in splash zones. Also ice on splash just a little above Tarata.

How to tell Ph. magister from Ph. darwini: magister has a longer broader foot (grosser foot) usually 26 or more; tail is more distinctly bicolor; belly fur is greyer, not as white; usually pectoral streak; ear smaller; dorsal fur browner coarser. They are both strictly nocturnal and behave the same when being handled.

Lizard along asequina on grid, but not captured.

Sept 29 Tarata

Sept 30 "

Oct. 1 Ice on basin in patio. Left at 8 a.m. for Yareta camp, arrived 10. Tarata 966 miles, Benav's Pampa 979, Km 110 981, highest



Pearson  
1971

15-meter spacing

queiro 14,000 ft. Laid out a  $13 \times 7$  grid, in yareta, Lepidophyllum quadrangulace, stinky Senecio (2 spp), and cushion cactus. Saw 2 Liolaemus on the grid (E11 ± and lower). In a half-hour walk saw about 6 other lizards <sup>(all multiformis)</sup>. 3:15 shade temp.  $7^{\circ}$ , under rocks such as where lively lizards lurked  $14^{\circ}, 20^{\circ}, 21^{\circ}$ . 5 inches deep in gravelly soil in sun  $11\frac{1}{2}^{\circ}$ . at 6:45 a.m. before sun, air  $-5^{\circ}$ , same gravelly soil  $+3^{\circ}$ .

Oct. 2 Night clear, calm, moon almost full. min  $15^{\circ}$  F. Grid at 6:30 am had 3 Akodon andinus and 3 Ph. darwini (1 dead), another Akodon (dead) before noon. Anita with 20 snap traps caught 2 Ph. darwini. also 2 dead darwini in big Shermans overlooked by me when we were here before. Put 6 big Shermans in a caverly place at base of cliff with lots of droppings. Saw no lizards on area when running my traps at 1 pm. The moisture at the edge of camp had a short day (see Anita's notes) and small range ( $\pm 20$  ft.).

Oct. 3 Night clear, calm, full moon. min  $6^{\circ}$  F; at 7:15 a.m. before sun  $18^{\circ}$  F. On grid caught 5 Ph. darwini and 1 Akodon. Anita, with 29 live traps around camp site. caught 1 tagged Ph. darwini and 1 tagged Akodon andinus. ~~Cage~~ Kept the andinus in a cage briefly: very wild. gave him choice of yareta seeds, Lepidophyllum, and both species of Senecio. He picked up a few yareta seeds & nibbled them.

~~The penguin~~

a pair? of penguins hangs out on a cliff about 300 yds. east of the study plot. They have been eating tinamous, hummingbirds, other birds, lizards, and a hystriomorph lower yareta too small for viscacha and not Ctenomys. Later ate seed snipe Oct. 4.

at 9 a.m. with shade temp.  $4^{\circ}$  we saw a Liolaemus alticola in yareta - Lepidophyllum at the edge of camp, 6 ft from where we





Pearson  
1971

were watching L. multifurcata yesterday, too lucky to capture.  
Saw lizard at C10 at 11:15, probably alticola because in thick Leptochloa near  
traps with abourea andina. D12 at 3 pm and C11 at 4 pm

Put 2 captive baby Siolaemus multi <sup>#4852, 4853, 4854</sup> and a captive L. alticola in  
shade in plastic bag at 5 pm. at 5:20 with air at 4° (lizards  
presumably equilibrated), both spp were totally unresponsive -  
acetated and could neither right nor walk.

Frogs & toads: 3 small individuals put into screen cage at 12:20  
in shade and breeze:

	12:32	12:50	1:05	1:15	
Frog "spot" #4855	6°	1 1/2°	2 1/2°		<u>Pleurodema macrinata</u>
Toad "stripe" #4856	9°	3°	2 1/2°	3°	<u>Pleurodema macrinata</u>
Toad pale spots #4854	6°	3 1/2°	2 1/2°	1 1/2°	<u>Pleurodema macrinata</u>
air	10°	9°	10°	9 1/2°	

synthetic frog [= plastic bag with water, covered with wet henley] 0°

Wet-dry bulb 50° - 30°. Wet-ray Schultze's in breeze 0° at 1:10  
all 3 spp able to walk and right at 3° and 2 1/2° body temp (oral)

Rehydrated them at warm tank then put on screen wire  
in sun at 1:40:

	1:52	2:00	
Frog "spot"	5°	6°	<u>Pleurodema</u>
Toad "stripe"	6°	5°	"
Toad pale spots	4 1/2°	5 1/2°	"

all 3 amphibians small, about same size.

Mom & kids went <sup>600</sup> 500 yds down road to seeps at 10 am  
and set <sup>#12</sup> 8 Shermans for Ph. boliviensis. Ali picked up  
a rock 15' from <sup>gassy</sup> seeps and under it were the above  
3 amphibians, 1 big Siolaemus multifurcata, and 5 to 7 very  
small L. multifurcata. By 3 pm the 11 traps had caught



Pearson  
1971

Varita Camp

		Oct. 2	Oct. 3	Oct. 4	Oct. 5
451 ♂ ad	<u>Ph. darwini</u>	A1	Hummer Rock 148m		
452 ♂ ad	<u>abodon andinus</u>	A8			
453, 454 ♀	" "	B1	moon 63m		B1
455 ♀ vag open	<u>Ph. darwini</u>	D11	D8	E8	E9
456 ♀ juv.	<u>abodon andinus</u>	D10	B11 and C10†		
— ♂ ad.	<u>Ph. darwini</u> (dead)	G8			
— ♀ ad.	<u>abodon andinus</u> (dead)	C10			
457 ♂ ad	<u>Ph. darwini</u>		F13 and E8 B7	E13	
458 ♂ juv.	" "			E6† dead	
459 ♂ ad	" "		G8		Hummer cave 100m
460 ♂ juv.	" "		G11	G12	G11 down road 160m
461 ♀ ad	" " not open		<del>A1</del>	A1	about hummer cave 130m
462 ♂ ad	" "			A13	
463 ♀ ad	" " not open			C1	
464 ♀ yg ad	" " vag. open			F9	

abodon andinus home range 50m, population of 4, 1.2 per ha.  
Ph. darwini " " 103m, " " 12, 2.2 " "

Vireoscha - present but densities not calculable.

fox + skunk + human

7 sightings of Loboceros alticola = 4.3 per ha.

On Nov. 15 Anita caught ♀ 455 north the hummer cave, #461 in the V below the road, #451 with lobbed tail above the road.

Hole at mouse sites: A8-2, B1-2, B7-0, B11-2, C10-4, D11-2

E6-0, E8-0, F9-2, F13-3, G8-1, G12-2 see more



Pearson  
1971

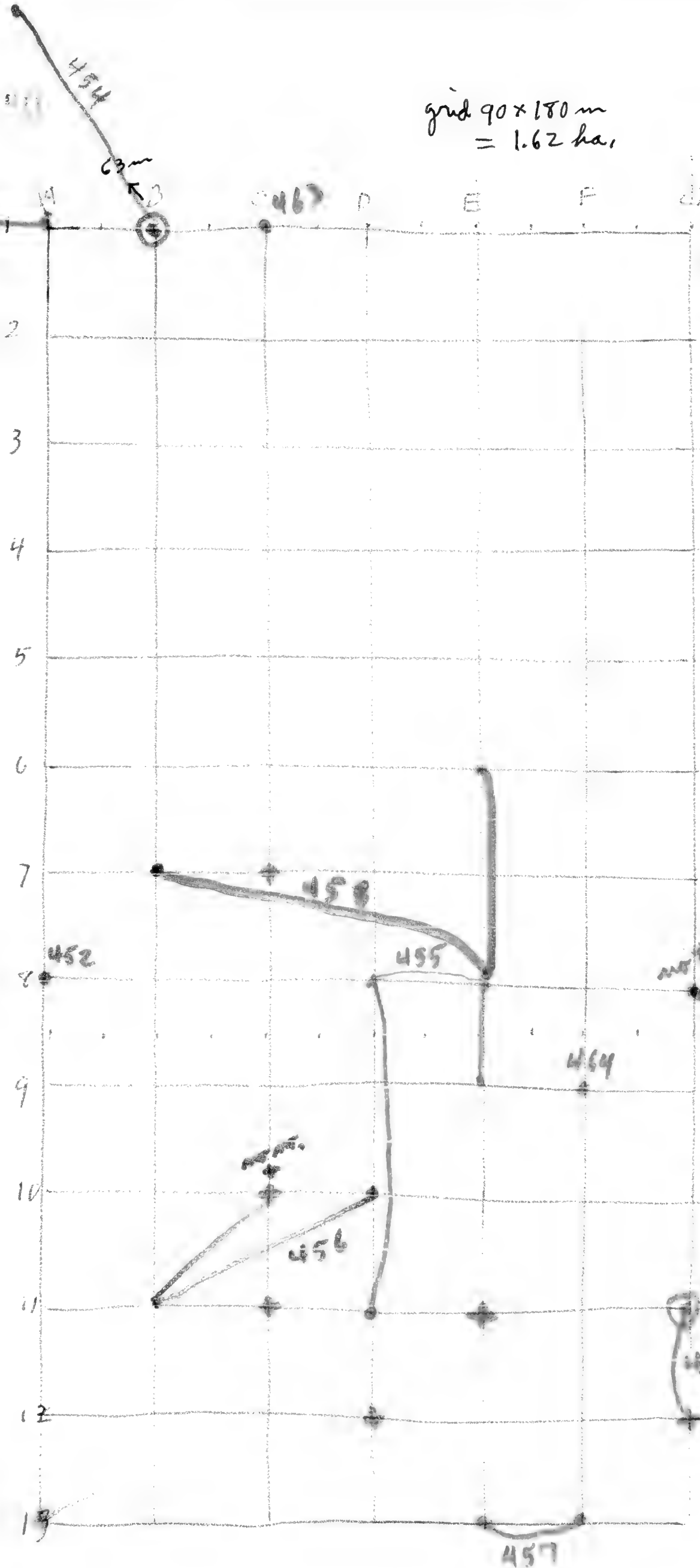
160 m

Camp  
48m  
451

grid  $90 \times 180 \text{ m}$   
 $= 1.62 \text{ ha}$

Nyarta Camp  
13 km NE Tarata  
14,700 ft.

lizard sightings  
abandon ordinance





5 Ph. boliviensis and 1 Cebodon andinus.

In PM did plant census of grid. The leaf samples do not represent fairly the importance of the straight-leaved smelly Senecio nor the crisped leafed smelly Senecio. also <sup>may have</sup> sighted Nototricho under bushes.

Oct. 4

Full moon, clear, calm, minimum 9°F. Ph. darwini in wire cage in car with yucca seeds and traps of all local plants died. Grist traps caught 8 darwini, while running the traps, saw 4 huenueles up among the crags & cliffs above camp. One was big buck.

Something has excavated around roots of long-leaved smelly Senecio. One looked at had a big orange-red grub in the center of the stem; another had numerous coccids.

First clouds appeared about 11 a.m.; at 12:45 it was grey-overcast to the east. More or less clear later. Put about 11 ms and 8 large Shermans in the cliffs at and above the hummingbird cave. At 2 pm cloudy bright, shade temp was 8°, in hummer cave 8°. Flurries of snow. Saw L. alticola at 1:30 at C7 on grid. moved cat sets (2), dead-mouse bait had not been touched in 3 nights.

Oct. 5

Full moon, some light overcast, minimum 21°. Carol saw small dark lizard run into bush at G12. Hummer droppings at hummer cave, which is only <sup>100m ±</sup> above grid. The two falcons are Falco fuscus. My traps at base of cliff at & above hummer cave caught Ph. darwini including two tagged ones from the grid. Ants caught & tagged one way down the road. Abrocoma escaped.

Review of mammal fauna: Ph. darwini common nocturnal and runs ranging although none caught out in open gravel slide sets. Cebodon andinus found almost entirely near thick





nests of Sepidophyllum goodenagrace. mostly nocturnal but some activity during the day. <sup>4</sup>Humming seen 250 m away and droppings 100 m. Viscacha in small numbers seen 100 m above grid, and their droppings are everywhere on the grid; they probably come down into the open parts at night and feed on cactus seeds, Sepidophyllum etc. In the cliffs are more green plants such as Werneria etc. Down the road  $\frac{1}{2}$  mile at the seep, Ph. boliviensis was abundant. It was barking long-leaved suelly Serecio; probably needs water. Something was excavating around the roots of l.l. suelly Serecio on the grid, probably to get at coccids and or big orange-pink grubs that tunnel in the main stem. These might be skunk, viscachas, or mice. Saw no tracks or evidence of <sup>spotted 3 sets droppings see below</sup> canines. No evidence of Chinchilla, Chroocorys, or Lunocorys, all of which might be expected.

Lizards: Lioleum alticola was common near Sepido. on the study area; L. multiflorus was seen at camp 130 m from the area, but none seen on the area. No amphibians, no water on the area, but 3 spp. of frogs & toads at a seep a half mile down the road. <sup>7 sightings of lizards on the area in 5 days: E11, C10, D12, C11, C7, G12.</sup>

Vegetation: Yareta & Sepidophyllum overabundant, but the two kinds of suelly Serecio are common. Underneath them we probably missed some Nototricha which I encountered when digging up Serecios as we left.

Card saw ants, 3 sets of canine droppings contained viscacha, birds, shells, small snails, mice, large flat humerus (lizard?), and broad blunt



toe nails of skunk size (see viol) (tinamon?)

Left about 10 for Tarata, all day was cloudy or cloudy-bright, even down in Tarata, and it snowed on the mountains south of Tarata; may have snowed at Yareto camp.

Oct 6 Tarata, some light clouds. Ph. darwini in cage overnight ate cactus seeds (cushion cactus) and fruit, and some twigs of Lepido- phyllum. In afternoon given more Lepido + cactus and Lepido galls, ate cactus seeds avidly, then flesh of fruit. No yareto <sup>eaten</sup> seeds. Abdon andinus overnight ate cactus seeds; no evidence of Lepido, Sereno, or yareto seeds. In afternoon ate bread fruit, then cactus seeds.

2 pellets under a cliff near the Yareto study area contained: (1) pure hummingbird feathers + feet (2) pure lizard scales. Also weathered mandible of a rodent and skull fragment and mandible of a small hystricomorph such as abrocoma.

Oct 7 Tarata

Oct 8 " . The captive Abdon andinus and Ph. darwini chilensis don't like Lepidophyllum quadrangulare, but love seeds of cushion cactus, and darwini likes the fleshy part of the fruit also

Sat.

Oct. 9

Left Tarata 8:45 for Taca Tulland's desert; arrived 11:45. The green crumble-leaf buckshot <sup>Foromiro</sup> Rall Carr turnoff had been eaten to the ground. Put out corner stakes of a 150x150 grid and set 41 small Sherman and 30 large Sherman around periphery at 15-m spacing and 3 rows. No footprints of mine but lots of small fox and a few big dog. Sables under almost first rock picked up near tent (not on study area). Eve clear, cold, in afternoon steady breeze from <sup>south Taca</sup> ~~south~~ (Tarata).



Pearson  
1971

Sun  
Oct. 10

5 a.m. foggy, but sun up by 6 and fog disappearing, including a curious almost-colorless rainbow. Hair soaked while running traps and Tillandsia wet on north side but not south. Very light breeze from north (Tarata), minimum temp.  $36^{\circ}$ . Our desert clear by 6:30, but still overcast & foggy a mile toward Taoro, and Taoro still completely overcast at 8:30 a.m. Curious acoustics at camp: can hear (and a novice could understand) a loudspeaker in Taoro.

Camp is a little ~~far~~ north of the 10 km marker on the Taoro-Tarata road (about  $10\frac{1}{2}$  km). No Tillandsia is budding or flowering, no seedlings, but it looks healthy. The <sup>rows</sup> lines and crescents extend east-west going toward the south. Have seen none of the little pink-red succulent on the area proper, nor the rusty-Bills lichen, but some grow 100 yds north of the area. There is one 2-foot-high sand "dune" within the area; it has choked and killed numerous Tillandsia, others are trying to keep from being smothered.

Traps untouched except a pot dry under one of them (unsprung). 2 steel traps baited with mouse carcasses untouched. Brief flashlight - quartz crystals & pebbles lighting revealed no geckos or foxes; too much glitter in soil to count spider eyes. Saw small bird and lizard-gecko tracks in the gully west of camp.

at 10 a.m. put about 25 museum specials in this gully. at 5 p.m. a *Tropidurus*? was in one of the traps. Changed the two pot traps.

In a typical part of the grid, I marked off a  $15 \times 15$  m section and measured and turned over all the Tillandsia. There were 57 mats or rows and I recorded in total under them 16 tiny spiders, 3 medium-small spiders, 1 long-legged minis-



spiders, 1 pseudoscorpion, and 2 small Thysanurans.  
Several collections of rather spherical empty beetle shells.  
A few snail shells strewn about the general area. No  
geckos or lizards. I think the reptile action is where  
the rocks are, and there are none on the study area.  
Carol found a *Fishia*-like lizard out in the open about  
50 m west of the grid. yesterday's gecko was also about  
50 m west. The area of *Tillandsia* examined in the 225  
m<sup>2</sup> was 372,090 cm<sup>2</sup>, <sup>= 16% coverage</sup>. The largest row was 700 x 50 cm.  
noon temps 72°, wet-dry 68°-59°.

1 P.m. open flat grid in sun, soil 3" deep 28°, 5" 26°.   
under large *Tillandsia* 3" 21°.

The sand dune is moving north leaving a trail of dead and  
dying *Tillandsia*.

Oct. 11

Some fog gathered during night but AM was clear. a little dew dripped  
off of car. a fox had approached one set cautiously and stolen the bait from  
the rear; a fox scented about 3 of the big shiny aluminum skunks!  
also 20 yds from tent. Early morning was overcast in Tacna.

no traps on grid touched. One in the rocky gully had  
a mouse tail - was I believe.

a gecko caught by Carol weighed 2 g.

at 6:30 a.m. shade ground temp. 4" deep 18°, 5" deep 17°, 3" deep 15°, 2"-13°  
Under *Tillandsia* 5" deep 16°, 3" deep 16°. Under yucca gecko-like rocks (thick):  
13°, 12° <sup>in sun</sup>. Under ~~flat~~ <sup>a</sup> flat rock in sun at 7:45 with gecko 14°.

This location shall be known as 4 miles north Tacna, 3360 ft.

The sterility of the study area proper with all its *Tillandsia*  
~~contrasted~~ <sup>due to</sup> to rocks and gully nearby is presence of rocks. The





am = ~ 06:00  
noon = ~ 12:00  
pm = ~ 18:00

# Tarata

<del>15 Sept</del>	Min	Max	R.H. am	R.H. noon	R.H. pm.
15 Sept	40°F	76	49-36	76-51	54-42
16	38	74	42-33	71-49	52-40
17	40		58-40		
18					
19					
20					52-40
21	78 ↔ 44	<del>44</del>	43-34	—	51-40
22	80 ↔ 45	45	46-39	73-49	55-41
23	44	<del>82</del>	<sup>07:00</sup> 50-37	72-48	55-42
24	44		44-32		
25					
26					
27					
28			<del>42-42</del>	72-42	
29	36	<del>76</del> 72	42-29	70-44	52-36
30	37	74	40-28	68-43	
Oct 1	36		37-28		
2					
3					
4					
5		63		60-42	56-39
6	35	68	<sup>07:00</sup> 43-34	66-47	52-36
7	36	63		73-48	<sup>20:00</sup> 51-40
8	37	74*	40-32	71-46	
9	38		40-32		
10					

Cloudy snowed on mt.

\* I discover sun hits thermom.  
~~at~~ mid afternoon



3 species of reptiles couldn't care less about the Tellardia.  
Spiders dominant. See Nov. 5 for sect analysis

Off to Tacna at 8:30 to meet Benson. Plans lots, all day  
in Tacna. Zonotrichia singing everywhere; Erythraea also common.

Oct. 12 Tarata. Sunny and warm.

Oct. 13 Left about 9:30 for higher with Carol & Benson. Camped  
at our same place at 6 km NE Tarata, 12,400 ft (Quercus large).  
measured out a grid in good bushy Quercus - hirsuta habitat.  
grid 11 stations x 9, set at 4-6 pm with large & small Shermans.  
Sunny and warm.

Oct. 14 min 26° clear. Ran traps at 6 a.m. on grid: 4 Peromyscus and 2 Bolomys  
berlandieri, then again at 9 = 6 more Bolomys one of which escaped  
untagged. Scorpion under a rock. No mice caught in clumps of  
pure Quercus, but a Bolomys was seen twice at the edge of a  
pure clump next to the tent about 8 a.m. Abrocoma tracks at a  
hole down near the tent of the road. also viscacha prints, foot prints,  
and probably skunk. Carol saw a viscacha, about 150 yds from  
the grid, but I have not seen any droppings on the grid. The only  
big rod seen has been my old friend Lepus multiflorus under  
the sand stone out on the plain.

Did plant inventory with Carol in afternoon; 4 rows = 22  
stations. Hoof basin hit any coater yet.

Full moon at 8 flushed Lepus but nothing else.

Oct. 15 night clear calm. 2 Phyllotis in the seven traps set for  
Abrocoma (two of the places with Abrocoma footprints and one with  
" droppings. Ran traps at 5:45: 6 Phyllotis, 3 Bolomys & at



# Aeneas study grid.

6 a.m.		Oct. 14	15	16	17
465 ♂ ad	<u>pale darwini</u> , pale tail, big feet	B10	A11		
468 ♀ "	" " long tail, big feet.	D6	G11	G7	
469 ♂ yg ad	" " pale tail, big feet.	F11	E8	H1	
470 ♀ ad	<u>Bolomys berlandieri</u>	F9	G10	I8, G8	
472 ♀ juv	" "	F8	F8	E4	
473 ♀ yg ad	<u>pale darwini</u> . <sup>smallish ft.</sup> pale tail, short tail	F1	E1	C3	

9 a.m.				
474 ♂ ad	<u>Bolomys</u>	B3, F2, C2, A1	B1, B4	
475 ♀ "	" not open	B2	C1	B3, C2
476 ♂ "	"	D11, A9		
one tag malfunction (see later)				
479 sex ♂ yg.	"	D2	E4	F2, F1
480 ♂ ad	"	H7, H5	F9	H4, G4
— yg.	" escaped untaged	H6		

12:30 p.m.			
— dead ♀ lact.	<u>Bolomys</u>	A10	
481 ♀ ad.	reg. N.O. "	G1	H2

— dead			
<del>escaped</del> juv.	<u>Bolomys</u>	D10	
escaped (tagged)	"	C1	

new 478 ?	<u>darwini</u> short tail, big ft.	F10	E11
482 ♂	" pale back, big feet	G8	

9:30 a.m.			
484 ♂ yg.	<u>Bolomys</u>	H5, G4	
485 ♂ ad	"	G1	I1
486 ♂ ad	"	A9 A10†	
1 p.m.			
487 ♂ ad.	"	C11	



Quercus study grid (cont.)

8 a.m.

Oct. 16

no tag o darwinii medtail, dark

C7

" " ♂ " short tail, pale

H6

1 p.m.

— ♂ ad Bolomys

A9

— baby "

E11

— escaped, may have been tagged one

H3

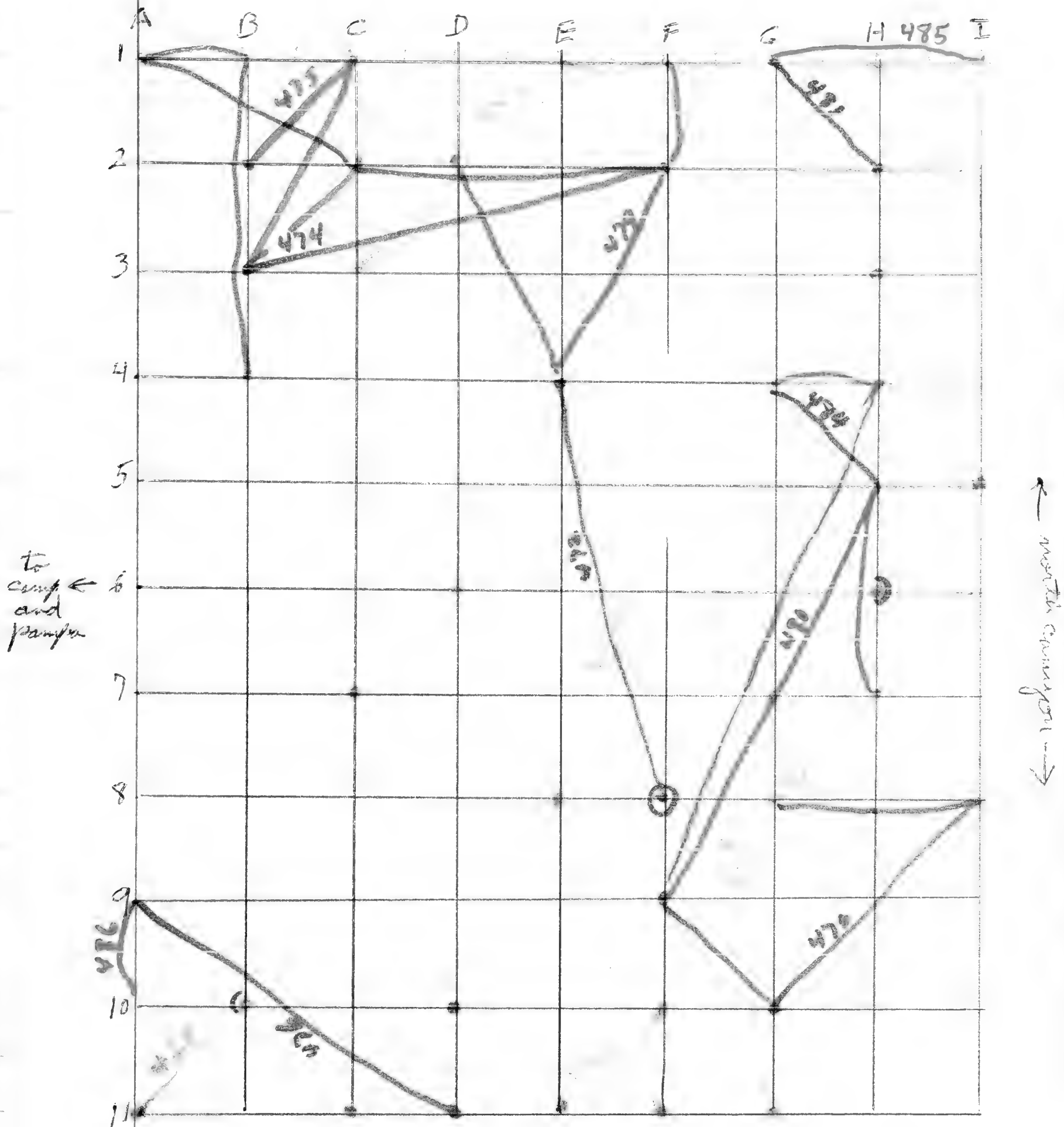
— ♂ Bolomys

I5





Queñua study grid. 6 km NE Tarata  
12,900 ft.



Phyllotis, av. range 60 m. Bolomys av. range 45 m.

grid = 99 stations =  $120 \times 150 \text{ m} = 1.80 \text{ ha}$ .

Densities: <sup>2.20</sup>Phyllotis ~~2.20~~ /ha; <sup>3.53</sup>Bolomys 3.53 /ha

nearby: viscacha, fox, alrocoos, Chinchilla, marmosa??, skunk,  
hermit?, Liolaemus multiformis.



9:30 a.m. 7 Bolomys; at 1 pm 5 Bolomys.

~~Theresa~~ Carol saw a lizard on the llama trail but not on the area. also a fox near the tent. at dusk put 17 steel traps and about 15 small and large Sitomys in rocky - cavity place above camp; ~~albomaculatus~~ tracks in dust.

Oct. 16

Carol found incubating Capprimulgus; below freezing every night. Only one Larvinia in traps. On grid at 8 a.m.: 6 Larvinia and 7 Bolomys. Two of the Larvinia were new ones, one with medium length tail and dark, other short tail and pale. All the Bolomys tagged ones.

Picked up traps at 1 pm: 3 unmarked Bolomys and 6 marked and 1 escaped unrecogized. I retract former statement: Both Phyllotis and Bolomys use pure clumps of Polyglossa - but they seem to prefer grass or cactus or something else instead.

Temperature under rocks out on Pompeya near the lizard rock at 6:30 a.m. (with same size as lizard rock and thermometer  $\frac{1}{2}$  inch in ground):  $5^{\circ}$  and  $6^{\circ}$  C.

Oct. 17

Tarata

Oct. 18

"

Oct. 19

Drove up to Yareto Camp (14,700') for an hour where counted hidehole at certain stakes where mice were caught: A8-2, B1-2, B7-0, B<sup>11</sup>H-2, C10-2, D11-2, E6-0, E8-0, F9-2, F13-3, G8-1, G12-2. Climbed up to the hummer nest: an adult flew from the cave mouth <sup>11:15 am</sup> or region of cave mouth while I was still 25 yds away <sup>and glared at me</sup>. I waited about 15 minutes and it did not re-enter. When I entered the cave it appeared again outside. Could see <sup>nor hear</sup> anything in the 2 nests.



Then drove to Capazo and Aconawara. Ctenomys peruanus digging just north of Capazo, but saw ~~and~~ heard none (1:30 p.m.). Had lunch <sup>near</sup> ~~at~~ our former campsite 2 mi N Challopalea, 14,000 ft. The 3 tolas are common there: Bambusa, Leptodermis rigida, and L. quadrangula.

Drove to Aconawara 3 p.m. a few huts, a chapel, and a school. Photo of school + teacher Mauro Sanzo Vilca, Correo Central, Juli, Calle Imprenta 122. Saw house cat in Aconawara (14,000 ft.).

Camped in tola - Festuca <sup>orthophylla</sup> - Pyrenophyllum 1 mi SW Aconawara and set traps through tola and along an abandoned stone corral. Vegetation almost entirely Leptodermis rigida and these other two. Lots of open two burrows. Put out 35 large Thomomys traps, and put out MS, and Seth large Thomomys traps. Aunts caught an Elgmodontia before 8 p.m. at an open two burrow.

Oct-20 Fantastic frequency of lightning at 3 or 4 a.m. centered around a thunderhead very low on the northeast horizon. Night clear, calm, minimum 2° F. My traps held 1 Bolomys, 2 Elgmodontia, and 1 Ph. sublineatus? Galeomys? In trap ~~at~~ one of the Elgmodontia appeared to be bipedal. Aunts caught 2 Galeomys, Elgmodontia, and 1 Bolomys (about 6:30 a.m.). Saw Bolomys at 7 a.m. There are a few heads of pillar cactus, much higher and more spherical than those so far seen. Also, around a rock hillside in the tola, were some Stipa sp.. Heard tinamou, Carol found rhea feathers and Sandy a snake skin. This location 1 mi SW Aconawara, 14,000 ft. Nobody saw or heard at once - two to go into all these burrows, although Carol saw a guinea pig outside one of them in open "pampa".

Left 10:30 and stopped at Capazo, then to a tola - brush grass study area 2 mi west of Challopalea, 14,000 ft. Carol and I



laid out grid 10x10 with 20-m spacing. Lots of tuco  
lucrons but saw none. Set 100 traps at dusk. Windy,  
ants & Seth set MS and live traps.

Oct. 21  $\frac{1}{2}$  mi. W. Chalchepala, 14,000 ft. night clear calm, min 6°. Long grid at  
5:15 a.m.; 2 Elgmodontia ♀♀. Again at 8: nothing but saw Tobemna  
multiformis at F  $3\frac{1}{4}$  mouth of burrow, and L. alticolor at 16 running into  
tola bush. Parakeets flew over grid + caracora along river. Counted sets of  
tuo-tuo mounds on grid; 59, but hard to tell which are occupied. The  
subsoil is not moist, so even fresh digging looks oldish + dry.  
Saw no tuco and heard none.

ants caught 1 Colonyr duella, Elgmodontia, + sublinea. Seth caught 1 Ph.  
boliviensis, 1 Colonyr berlepschii, and Elgmodontia.

ants says Ph. sublinea droppings are small spheres. She saw Ph.  
boliviensis eating Zephids. rigidum.

Carol notes that the south side of upstate is always the dead side.

In afternoon (windy) plotted clusters of tuo diggings and rated  
them 1 (very fresh, surely today), 2 (fresh, surely last 2 or 3 days), and  
older (more than 2 or 3 days). Ignored really old, presumably abandoned  
ones. at least 28 sets.

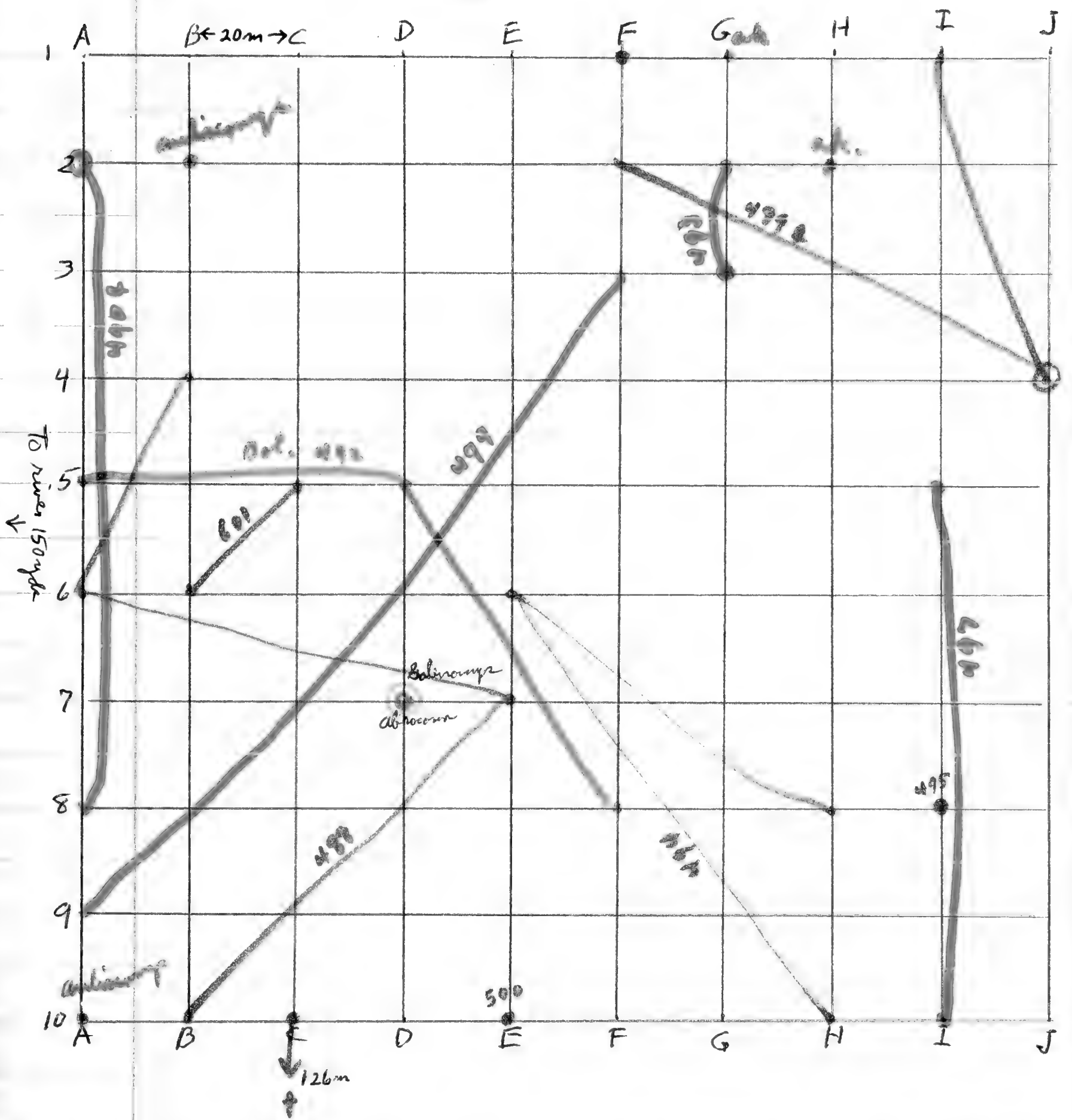
Oct. 22 night clear, calm. min 8°. Grid traps at 5:30 had 6 Elgmodontia,  
1 Colonyr, and 1 juvenile Abracon (frozen). Ants caught a large  
Phyllos. darwini in the ~~base~~<sup>hut</sup> ruins 100 yds <sup>W</sup> of grid. Fauna now  
includes Ph. darwini, Ph. boliviensis, Colonyr duella, Ph. sublinea?  
Colonyr berlepschii, Ctenomys opimus, and Abracon cinerea. The  
boliviensis near the river.

Excavated the burrow in part of which the juvenile Abracon  
was caught. A typical 2-ft <sup>tuo</sup> grass nest a few feet down, but  
there is 10 yds of typical tuo tunnel.





Tola area  $\frac{1}{2}$  mi. W Challopalco, 14,000 ft., Dept. of Tacna  
3,24 ha.  
 ↑  
 East



12 Eligmodontia caught on area. Linear index 12.38, home range 92 m  
 density 1.81 per ha. 1.81

4 Ctenomys opimus (av. wt. of 4 nearby 241g)

2 abrocomys sublimis

2 abrocomys andium (both near rock)

1 abrocoma cucul (28g)

1 Galenomys (34g)

1 Bolomys berlepschi

caught within 150 yds.

Ch. darwini

Calomys duvall

1 Zoalemus multispinus

8 " alticola

+ 2073 g of  
 amphibia  
 near



since on tola grid		Oct. 21	Oct 22	Oct. 23	Oct 24
488 ♀ ad Eligmodontia		B10	E7	A6	B4
489 ♀ " "		J4	F2	J4	I1
490 ♀ " "			A2	A8	A2
491 ♂ " "			C10	correl + 140 yds	
— juv. afrocora dead			D7		
492 ♂ ad Bolompe			F8	D5	A5
493 ♂ ad Eligmodontia			G3		G2
494 ♀ yg ad " Vag. open			H10	E6	H8
495 ♂ ad "				I8	
497 ♀ ad "				I10	I5
498 ♂ juv. akodon andinum				H2	
499 ♂ ad Eligmodontia				F3	A9
500 ♂ ad big "				E10	
601 ♀ ad vag. open "				C5	B6
602 ♀ ad black vag not open Auliscomys sublineis				B2	
— ♀ N.O. ad big Phyllotis sublineis					A10
— ad Galeomys					E7
— ad Eligmodontia untagged					F1
— akodon andinum. leg hard now					G1

Lizards: ♀ multiformis F3 1/4

alticolor J6, J6

" J1

" A1

"

"

D 8 1/4

A4

A 4 1/2 another

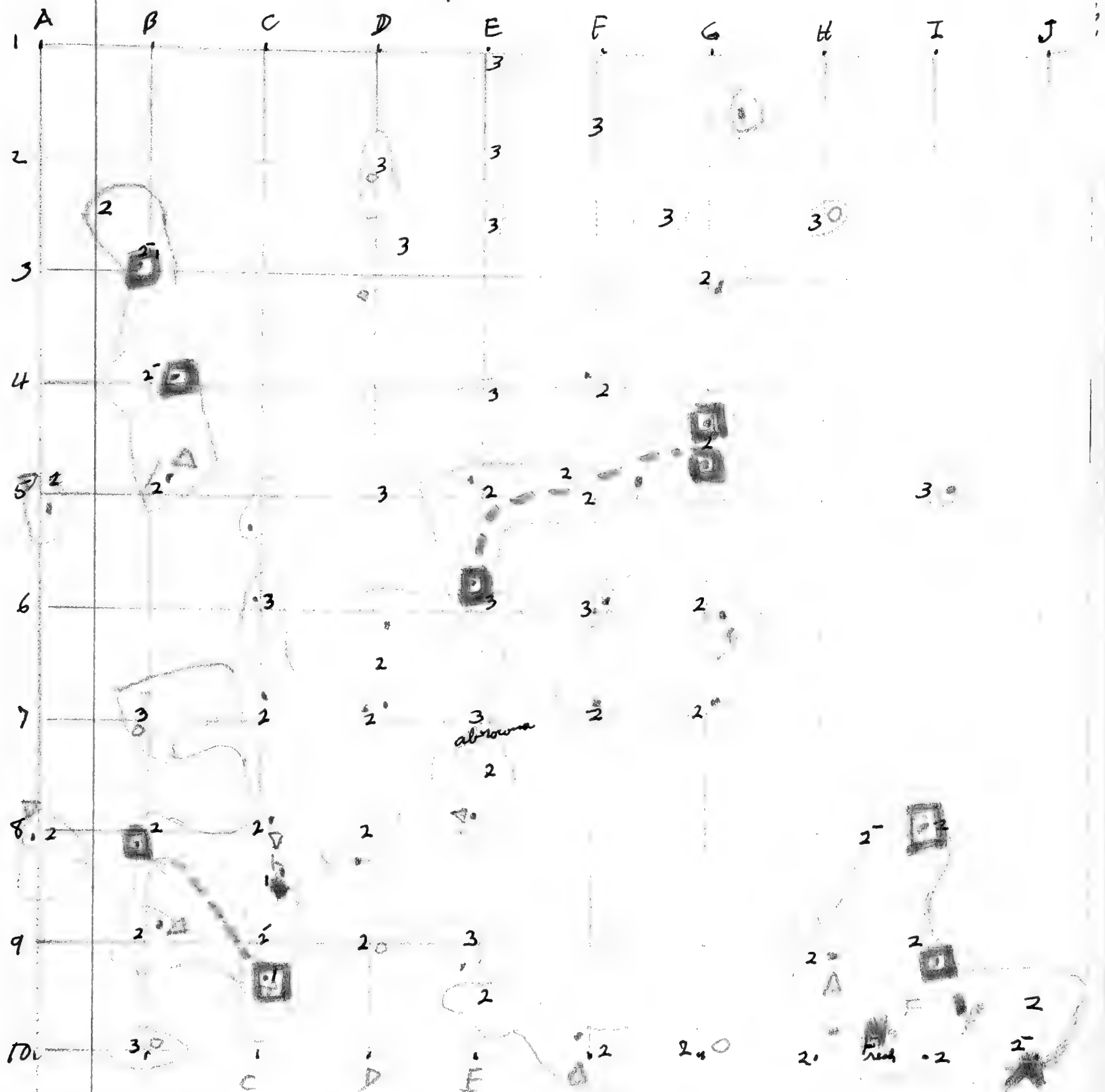
A6

B6



Total area:  $\frac{1}{2}$  mi w Chalchopala, 14,000 ft., Dept. of Tama  
TUCO SIGN

East  
↑



10/21 - estimates of fresh (1), new (2), oldish (3) tunnel burrows  
10/22 agreed well. 9-12 a.m. opened up burrows at pencil dots.  
Δ = opened up morning of 10/23  
□ = plugged by tunnels between 10 a.m. 10/22 and 10 a.m. 10/23  
○ = could not find an open burrow to open up (2 or more tries)

Bq-Cq converted by old barrels.

138-C9 " " 2- - - - -

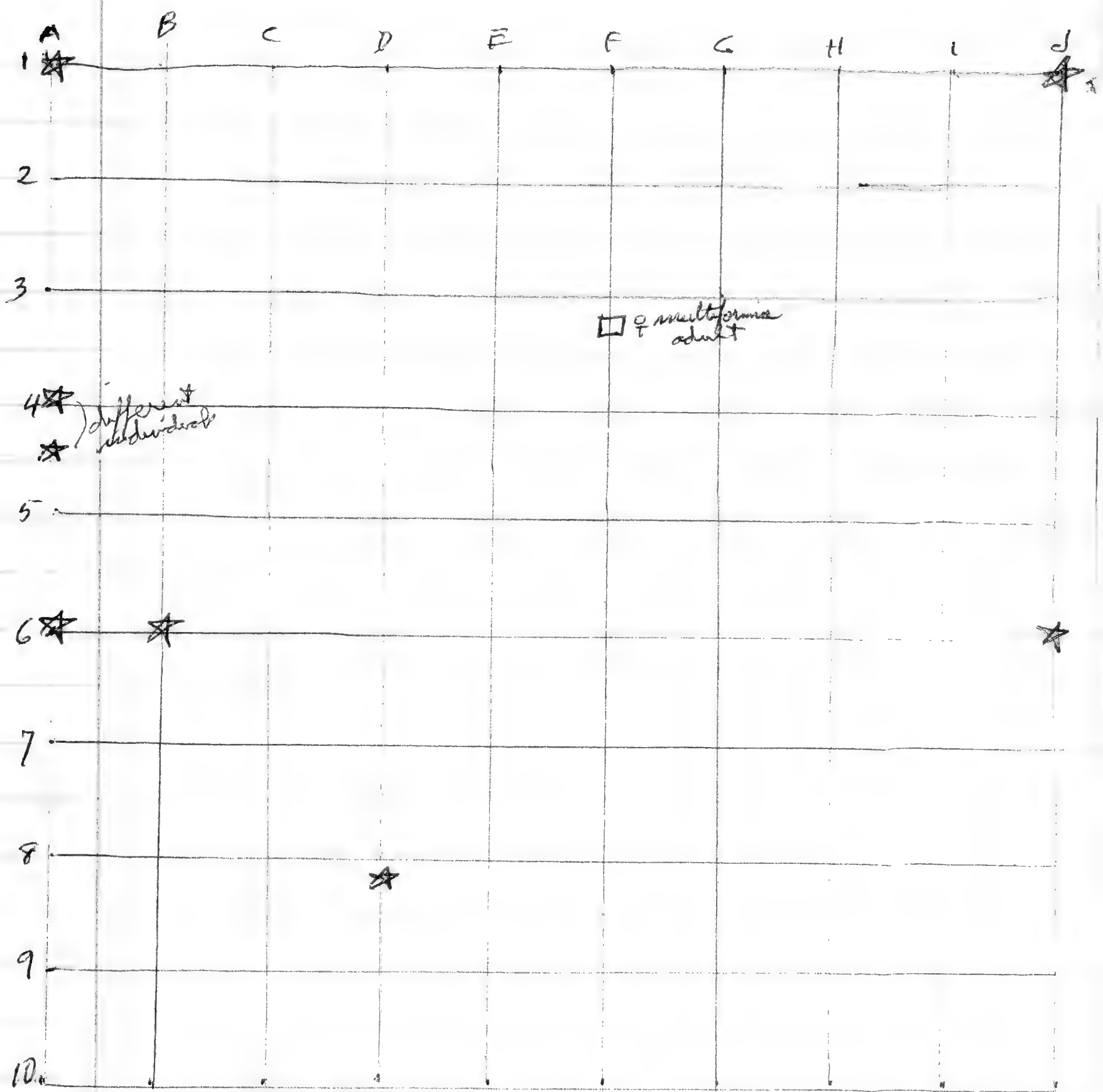
F5-F5 fairly good connection

F5 -  $G4\frac{1}{2}$  für Connection, one negative.



Pearson  
1971

Lizards on Tola study area  $\frac{1}{2}$  mi. W Challopalea



The ~~best~~ sampling of the tola study area probably is a pretty good representative sample. The area itself looks almost entirely the same as the area (or Tetraglochin) found near the tent. Noteworthy is the absence of rocks and the presence of terco-trees and their prodigious tunnels (and huge "home ranges"). On the hills above Challopalea (north and east) are lots of Quercus, as well as above the pass to Cucumoreca (at least <sup>tree at</sup> 15,000 ft.). Wind!





Oct. 23

night clear, calm. Various soil temps:

7:40 a.m. 1" deep in shade 2°  
 " 6" shade of car - trees 3°  
 " 1" " " " - 3°

on area 8 a.m. sun 1" deep 0°  
 " " " " " 9°  
 " " " shade of bush - 10°  
 " " " 6" tree sun 8°  
 " " " " " " 8°  
 " " " " " shade 5°  
 " " " " " sun 8°

1 p.m. sun 4" deep 17°  
 Open burrow sun 6" 12°  
 closed " " " 18°  
 Excavation 8" 14°

near camp is Meryx <sup>or composite thorn bush?</sup> ~~reynoldsii~~ (or tetroglochin) and Urotroche but they are rare on the grid. Have not seen Stipa ichu on the grid but there are some bushes near a large boulder maybe 50 yards from the grid. at another area Stipa also grow only near a rock outcropping in the pampa.

Elgmodontia when released from traps frequently seems disoriented and runs from hole to hole as though looking for familiar terrain. Twice when released from traps, an Elgmodontia with matted or wet fur stopped almost immediately and dived by squirming in the dirt. They run like a Peromyscus, not bounding like a Dipodomys. None have died in the traps in spite of night temps down to 1° F.

The trees here are enormous, rarely seen (only Carol has even gotten a glimpse of one) and do a lot of digging. Earth mounds containing 5 gallons are common, and on the grid it is beginning to look like they have very large ranges, moving across the pampa 50 or more yards leaving a trail of ageing earth mounds behind.



They frequently nip off tola twigs of pencil size. a dozen nests dug up have all been made of grass pieces cut to about 3". In only one tunnel base ~~has~~ <sup>actually found</sup> cut twigs of tola.

Afternoon very windy, evening calm.

Oct. 24. Temp. record beginning Oct. 23 following a minimum of  $9^{\circ}$ :

8:15 a.m.	42°		9:05 p.m.	30°	no wind
9:03	49°	clear, no wind.	11:40	18°	clear
10:30	57		1:00	15°	"
11:00	61		2:30	12°	"
11:50	61	wind beginning about 12:00	4:00	11°	"
12:50	61	- Windy, fluffy clouds to east	5:00	12°	"
1:25	60	- Windy	5:15	14°	"
2:15	60	"	5:30	17°	sunrise
3:00	56	"	6:00	18°	
3:45	54	"	6:10	21°	
4:30	51	"	6:50	30°	
5:15	47	"	7:05	30°	
5:40	43	"	7:20	32°	
	sunset				
5:45	42	"	7:47	39°	
5:50	42	less wind	8:00	44°	
6:05	40	" "	9:30	54°	
6:30	36	no wind	10:55	60°	
7:10	34	blustery	12:00	61°	

sky overcast and to <sup>N, S, & E</sup> west clear throughout.

Picked up grid traps at 6:30 a.m. a Golenomyz in the same trap as the abrocoma dug before yesterday. It had been set alongside the excavated grass nest lying in the ditch made by excavating them.



the two burrow presumably occupied by the baby abroreona.  
Aunt also got a Galenomys along a wall at the abandoned  
hut 140 yds west of the grid. It had greenish yellowish/sulph  
in its stomach.

Hideholes at stations with mice but not covered in our regular grid  
~~census~~ vegetation analysis: A2-1, A5-7, A6-1, A8-4, A9-1,  
B4-3, B6-1, B10-2, C5-1, C10-2, D5-2, E6-3, E7-2\*, E10-2  
F1-1, F2-2, F8-1, G2-1, G3-4, H10-2, I1-2, I5-4\*

Did plant census 9:30 to 11:30, tree analysis, and hidehole count,  
then home, arriving Tarata about 5 p.m.

Oct. 25 Capture Elgnodonta are completely gentle, easily handled, at  
blossoms of Lepidophyllum rigidum. ♂ and estrous ♀ lived harmoniously  
in same trap and cage. Bipedal stance looks like Dipos or Perognathus.  
Sometimes a bipedal jump, but mostly move like Peromyscus.  
Galenomys was completely docile, almost plastic in cage.  
never dangling.

Oct. 26 Drove with Carl + Benson to Yareta camp. Thin overcast at  
Tarata and at Yareta camp.

Field character for distinguishing Galenomys from Rh. sublimis:  
Galenomys has wide hairy feet, white upper cheeks, fatter tail. <sup>sublimis's scats</sup> not long.  
Scats from 1 mi. SW Anconarca: (not counting snake skin found by  
Landy):

Scats from  $\frac{1}{2}$  mi. W Chalchopola: 6 scats in one collection contained  
hair and two bones, no mouse or bird bones.

11 scats from Anconarca  $\rightarrow$  Calomys drilla, 3 large mice of at  
least 2 spp., and at least one bird and a scorpion/pincer.



Oct. 27 Tarata

Oct. 28 Drove to Hda. Pairumani (Ontave) and camped I think about 100 yds south of our 1946 camp site. Drive took most of day. a good stretch of mixed Festuca - ichu <sup>between Challopalea +</sup> ~~south of~~ <sup>Wagocruz</sup>, and lots of good alfalfa pastures. Saw no deer or tinamous or vicuñas. Weather somewhat overcast. Benson caught 12-14 inch trout.

Oct. 29 Put out <sup>minimum temp 24°</sup> ichu grid 8x12 rows with 15-m spacing. Fairly heavily grazed and, in search of some rock outcrops, it contains some fairly bare patches. Probably "typical" of the area.

In the p.m., the owner dropped in; Sra - Gonzales Armat, sister of the owner of Hda. Pairumani. She says we are on Hda. Ontave and that it has not been nationalized. Various people fished without great success. Put 9 traps around adobe bricks piled near camp. Slight overcast all day.

Oct. 30 Minimum 20°, mostly clear but not entirely. 9 live traps caught 1 osilal and 1 Calomys ducella. Bird 2 osilal, 1 berlepschin, 1 duella, mostly near grid. Anita's live traps in gulley caught 3 osilal; Benson's snap traps caught 1 Ph. sublimis, 2 akodon bolivi, and 4 osilal. Later in the morning his live caught 2 Calomys amoenus and 2 amoenus got caught on the grid between 6 and 9 a.m. Moon 3/4 or 4/5 full. Day about half cloudy - bright.

Oct. 31 Cleared up over night; minimum 4° F. Benson with 30 snap traps at base of a cliff north of camp caught 4 osilal. Anita with 17 large shermans at the base of the cliff shown in the altiplano paper caught 1 Calomys berlepschin and 1 Ph. osilal.

Benson + Anita drove yesterday to the Pampa de Quelcota in search of Stenomys peruanus. They found old old burrows but nothing fresh and heard none.





# Lehr grid

		Oct. 30	Oct. 31	Nov. 1	Nov. 2
603	♀ ad. vag. not open <u>Phyll. osilae</u>	F1	E2	C3	B3
604	♀ " " " " " "	F6	F4		F4
605	♂ ad. <u>Calomys ducilla</u>	C6	F7	C8	
606	♂ ad. <u>Bolomys berlepschi</u>	B3		A3	
9:30 am					
607	♀ ad. vag. open <u>B. amoenus</u>	K1			
608	♂ ad " "	I3	D5	J4	
609	♂ <u>Calomys ducilla</u>		L3		L3
610	♂ ad <u>Ph. sublimis</u>		L7		
same trap	611 ♀ ad <u>Bolomys amoenus</u>		J2		J2
	612 ♂ " " "		J2	J1	
613	♀ ad <u>Ph. osilae</u>		F2	F3	E2
614	♀ " " "		D2		
10 AM			G3		
616	♂ ad <u>Bolomys amoenus</u>				
617	♀ ad vag. open " "			I4, I6	
—	♂ ad dead " "			I1†	
618	♀ ad. vag. open " "			F1	J1
620	♂ <u>Bolomys berlepschi</u>			B1	
—	♂ ad <u>Ph. osilae</u>				H1
—	— <u>Calomys ducilla</u>				H4
—	♀ <u>Ph. <del>sublimis</del> osilae</u>				E4

Total mice caught on area: 8 Bolomys amoenus, 6 Phyllotis osilae, 3 Calomys ducilla, 2 Bolomys berlepschi, 1 Akodon sublimis ×

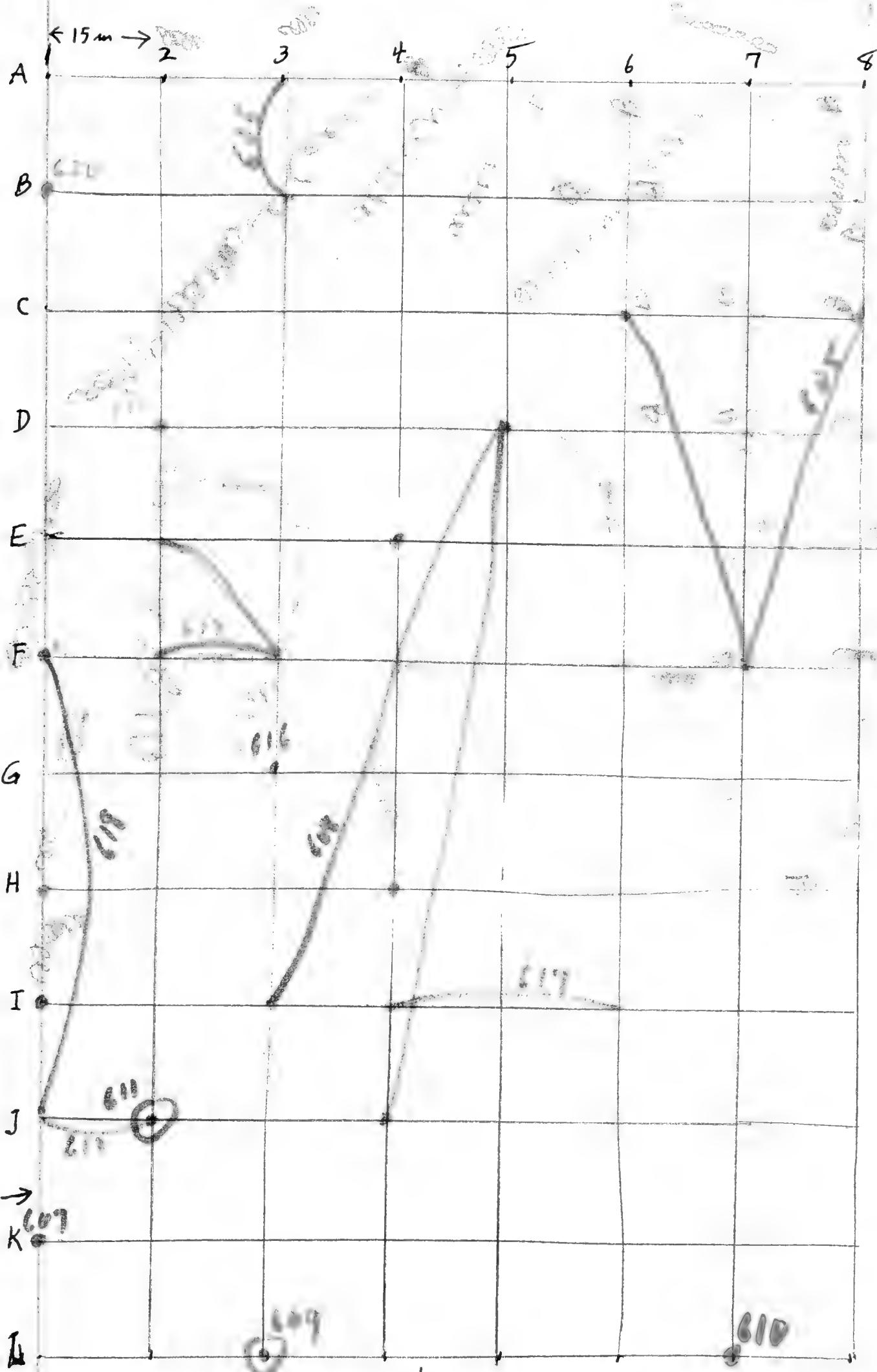
Ranger and densities: amoenus 41 m. = 2.66/ha; osilae 40 m = 2.24/ha;

10/30 10:30 small lizard 18 ducilla 29 m = 1.5/ha; berlepschi assuing 30 m = 0.76/ha; sublimis assuing 30 m = 0.38/ha. Total mice = 7.19/ha.



Schu gird, Hda Oatene, 12,900ft; 40 km S Lane.

1972



⊕ = *Polypodium aureum*

↓ Down Hill WNW

⊕ = *Ruellia*

• = *Senecio*

⊕ = *Geranium*

Periodic scuffle = *Acacia*

*Acacia*



Ants are fairly common here. Have flickers? The ~~edge~~ bank of the gully next to camp is riddled with burrows and is a center of bird activity:

Nov. 1

Clear, calm overnight; <sup>?</sup>min 9°. Noon very hot, wet-dry bulb at 1:30 71°-42°; 2:30 still 71°, clear, breeze but felt stifling.

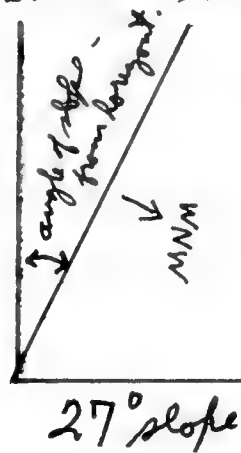
Benson caught a Neotomus in thick ichu along creek at 5:30 pm. (in snap trap but it survived overnight for cytology). He also caught 2 Amblyscopus pictus in heavy thick ichu near creek, also 2 osias. Anita in 19 large Spermomorphus at base of the cliff toward beds caught 3 berlepschii and 2 osias.

Looked for frogs after supper, but only tadpoles in a shallow pond along the road. Full moon.

Nov. 2

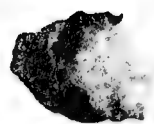
Night clear. Pulled up traps at 6 a.m. maybe a Ph. darwini on the grid; see specimens. Then Carol and I finished plant survey on grid. Hit most all species of plants except the bird-nest cactus. An Oreotrochilus visited 4 or more of our red yarn markers while we were surveying. This area, like all our study grazed; this one by cows. Horses nearby.

on the area and on various plains or others.



areas except Tillandsia, heavily Ilares, Alfoceros, Sheep, and There are traces of ancient agriculture hills nearby, plus recent

No. of hideholes at mouse sites other than regular stations: A3-0, B1-0, B3-3, C8-0, D2-0, D5-0, E4-0, F1-0, F2-0, F4-0, F7-0, G3-1, H4-0, I4-0, J2-0, J4-0, K1-0, L7-1. In gathering these data it appeared that the mouse sites were near outcrops, not necessarily ones with hideholes. In other cases there were hideholes beyond the range of the 2.2 meter stretch.



For birds note that there was nothing higher than  $2\frac{1}{2}$  feet or 3 feet on the ichu area (not on the tola or Tillandsia areas).  
 Summary of plants on ichu area: no. of hideholes per plant station 0.34; hideholes per mouse station 0.61; hideholes per no-mouse station 0.09.  
 Profile: 1<sup>st</sup> half meter 81.0% of board occluded; 2<sup>nd</sup> half meter 4.1%; 2<sup>nd</sup> meter 0.03%. Hoop sampler % coverage  $\frac{50.0}{52.7}\%$ ; % coverage of mouse stations 54.6%; % coverage at no-mouse stations  $\frac{48.0}{52.0}\%$ .

nov. 3 Tarata. I put 17 museum specials and 1 large shermans in the big rocks south of town and along a stone wall with scattered bushes at the edge of a clover + alfalfa field at dusk. Benson put 20 MS along a wall at the edge of a young-corn field.

nov. 4 night clear, light frost on clover leaves. Combined catch was 13 Ph. magister and 3 Akodon boliviensis. Below the level of the big rocks, every mouse on the entire hillside surely lives in a terrace wall. Since all of Benson's mice came from about 100 yds of wall and surely don't include all of them, let's say  $\frac{10}{12}$  Phyllotis per 100 yds of wall = hundreds or thousands over that terraced hillside.

at 3 PM drove up to the acagiva camp with Benson and I put out 40 small <sup>NF</sup> shermans, mostly along road walls, some in thick brush in a gully across the road. He put out  $\pm$  50 large shermans and maybe 30 museum specials. Clear.

nov. 5 night clear + calm, breeze at about 4:30 a.m. Breeze on puddles. my traps had 7 Phyllotis (mostly dorwinii but at least 1 magister) and 2 Bolomys berlepschii - all Phyllotis put up except 1 dorwinii escape.





One of Benson's trap lines ran along the acequia from about A7 of our grid to the other campsite upstream. On this part of his line he caught 4 *Phyllotis* - all tagged (428 <sup>register</sup> & P.O. near A4), 448 register 20 m east of A3, 437 ♂ 60 m ± east of A1, and near A5. He also had traps on the slope north of the reservoir and caught no. 433; this must be at least 200 yds from the nearest part of the grid.

Reservoir was empty at 6 pm with no water going in. at 6 a.m. it was full, with no water going in. (They must fill it at night to provide maximum <sup>↓</sup> but water flowing) irrigation water during the day. out to join the acequia

Dissected about  $\frac{1}{2}$  pint of caracaras droppings from the gully near Tillandsia study area. Contained mostly invertebrates (such as scorpions), bird (only a few feathers), garbage (tin foil, cellophane, watermelon seeds), 1 mouse incisor, teeth and apic of a hystricomorph such as recocha! also belly scutes of a large lizard or of a snake. no other mouse bones, no gopher bones seen.

Nov. 6

Left 8:45 for Tacua and coast. Dry dry dry until after Santa <sup>"north of"</sup> Colorado, then some flowers begin to appear. So we continue at Quebrado El Burro, then a medium of green on a 1500 foot + rocky cliff near a sea lion colony at Catete morro Sana, which is 65 km west of Tacua. Went as far up the coast as a sign but at a cave occupied by a guard caretaker who had an ancient gun and about 15 pairs of conch or feet. a dark lively small lizard lived right at the edge of the surf. Made camp about 300 ft above the rocky



beach under the cliffs. Put out 3 rows of traps (35 small shrews) at 15 m intervals, 25 m. apart across what will be the study grid. 7 or more condors went to roost high up on mounds and. Hundreds of goats grazing up in the greenest part up high. Plus a few cows. Weather sunny with a sea haze; felt muggy to us accustomed to Tarata & higher.

Nov. 7

Morning cloudy until 9 or 10 o'clock. Condors left their roost before sun after much flexing of muscles and ~~stretching~~ trial flapping of wings. 5 Phyllotis <sup>darwini</sup> in traps on grid and Benson caught 3 adult and a juv darwini in snap traps below road.

Staked out a 10 x 11 15-meter grid in stoney ground between the road and cliffs. Lots of flowers of many many kinds; only a few places with sparse scattering of grass. Lots of a yellow flower. broad leaved dewy bush, lots of flax and a white-flowered shrub-leaved flower with long long stamens, beautiful rich colored rustartums in the stoney "river" two of which "pour" across the grid. They carry a river of green man-root down from the greener heights up above. Morning glories blooming, a malva? and many many others.

a burning owl has his burrow close to camp; fox droppings everywhere; turkey vultures common, even a few feet from sea lions; also a few flock vultures. Ali thinks she saw an abrocoma in one of the rock



river a little above the grid, and Benson saw what may have been otter tracks along the ocean while setting traps along the beach. In various puddles and seeps we have found several worms, a house mouse, an akodon?, and many Phyllotis.

The grid is loaded with lizards. Put traps out 4 to 6:30; small lizards were still out until about 6 p.m.

Nov. 8

Night and a.m. overcast. 8 Phyllotis darwini in my traps. Benson got some darwini plus a mus near the beach. He saw <sup>an</sup> otter in the surf, plus droppings that contained mussel shells (small) and fish bones. Anita saw an otter curled up asleep on the beach, which Benson later collected. Left for Tacna 9:30 a.m. and spent all day getting car Rodaje, money, etc. Returned 6:30. Viñedo from Boca del Rio is 15.1 miles, almost all straight except for the zig at Quebrada del Buena, so maybe 14 miles up the coast from Boca del Rio which on our road map is Las Baños. The cordón cliff is surely morro Sama.

Nov. 9

~~The~~ Night and all morning overcast or cloudy bright. Only 3 mice in my traps and 1 Phyllotis in Seth's in cover rocks. Spent morning mousing and working lizards on study area. One big lizard was out at 5:30 a.m., but saw no others until much later. 3 or more condors flying at 5:35, but people were near cliff. Marked 17 lizards between 8 and 11:55.

a passerby who owns goats & cows says it actually rains in May-June-July.

Found about 100 terminal prints of scorpion tails on one rock. In afternoon climbed to top of morro Sama; it is



Southern gird. 10 x 11 stations at 15-min intervals.  
Morro Sana, 200-400 ft, 65 km W Tacna

	<u>nov. 7</u>	<u>nov. 8</u>	<u>nov 9</u>	<u>nov 10</u>	<u>nov. 11.</u>
621 ♀ juv. <u>Phyllotis darwini</u>	B2-A3	A1	B1	A2	<sup>19/12</sup> A1
622 ♀ <u>ad</u> v.o. " "	B3-A4			C2	C4
623 ♀ juv. but v.o. " "	A9	B10 NO.		A10	B10 A10
624 ♀ juv. v.o. " "	D4-E5			C4	E4 D5
625 ♂ juv. " "	G8½				
626 ♂ <u>ad</u> " "		A2		A1	B4
627 ♀ juv. NO " "		A6			D7
629 ♂ <u>ad</u> " "		B4	F5		
630 ♀ juv. < 20g v.o. " "		F7		D9	F7
631 ♂ juv. but developing " "		F3			F3 ct
632 ♀ <u>ad</u> v.o.		I1		I1	
633 ♂ <u>ad</u>			J7		
634 ♀ juv. v.o.				A3	
638 ♂ <u>ad</u> .				B4	C5 E6
639 ♂ <u>ad</u> .				I8	
640 ♀ juv. v.o.				A6	
— ♂ <u>ad</u> escaped				D3	E3
<del>640</del> 641 ♂ <u>ad</u> .				G7	
— ♀ <u>ad</u> reintroduced					A3
<del>642</del> ♀ <u>ad</u> "					B8
— ♂ <u>ad</u> "					D6
— ♂ <u>ad</u> "					F1
— ♀ <u>ad</u> "					G2
— ♂ <u>ad</u> " (maybe overlooked yesterday)					K9.
— ♀ <u>ad</u> " (surely " " )					K10

no. of hideholes at mouse sites (32) = 3.750

" " " at no-mouse " (31) = 3.32

~~Final list for code~~



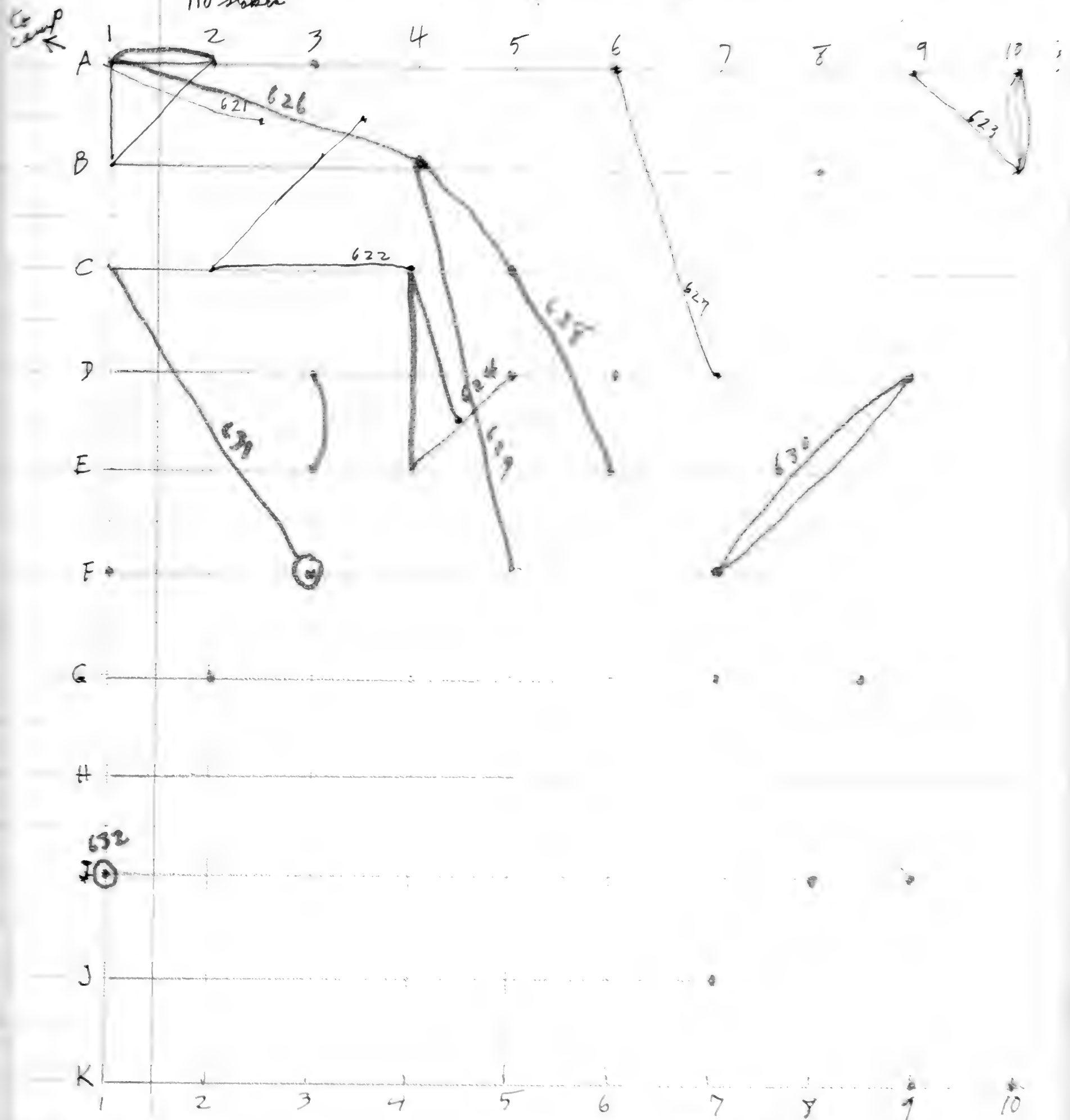


# LOMA GRID.

2.025 ha, 15-m spacing.  
110 stakes

to ocean  
↑

all *Phanerogamus*



## Home ranges

- 621 - 23 ad 632 - 8
- 626 - 47 ad 638 - 54
- 622 - 31 — — 15
- 623 - 21
- 624 - 30
- 627 - 47
- 629 - 62
- 630 - 42
- 631 - 54

area occupied = 3.18 ha

Simultaneous on 11/12 corrected for 2 mice  
overshot at K9 and K10 on 11/11

$$12 \overline{) 434} \\ 362$$

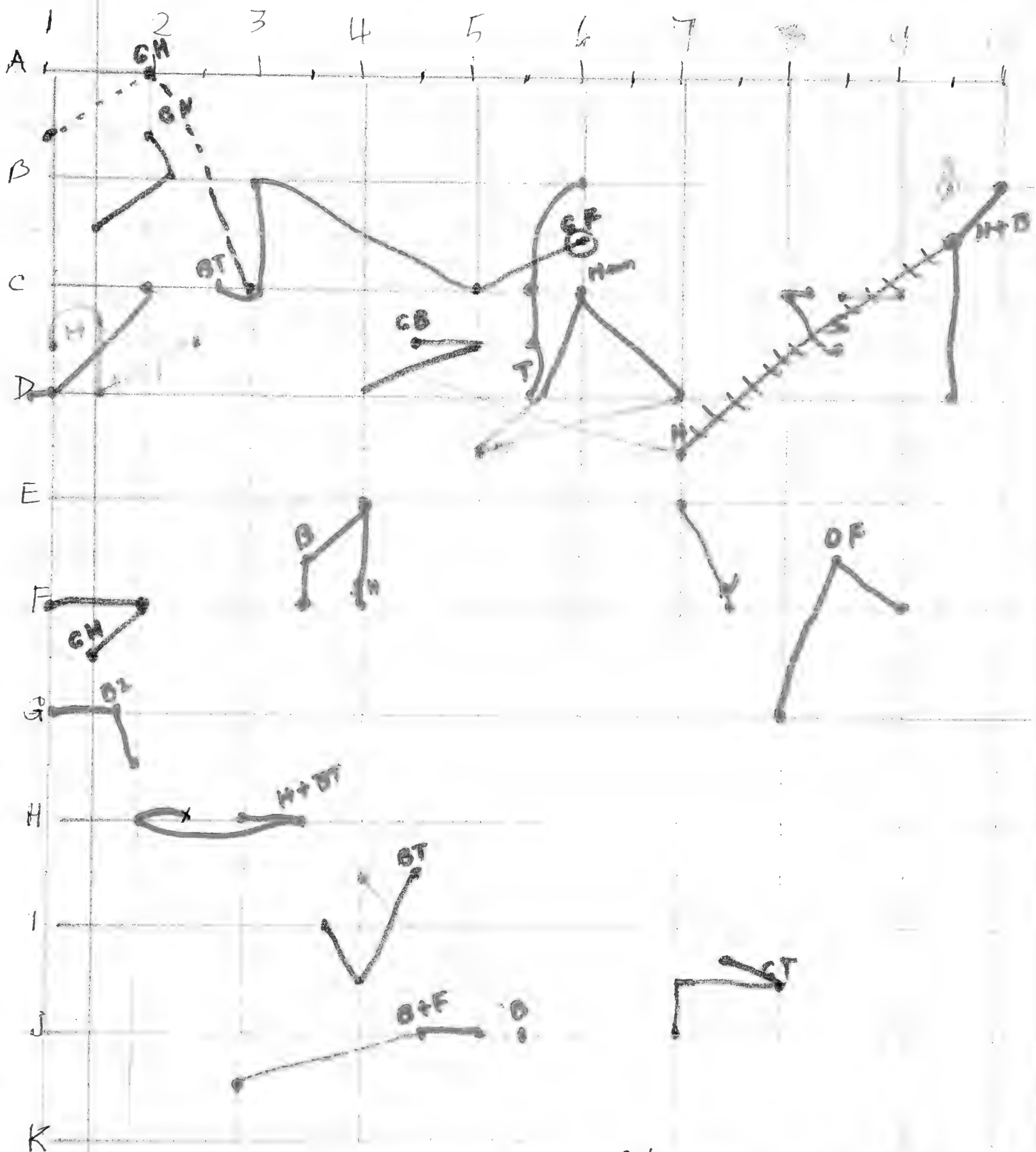
$$18 \text{ miles} \times \frac{14}{9} = 28 + 2 = 30 \text{ miles}$$

Based on 25 recaptures  
of 12 individuals.

$$7 \times 9 = 157 + 2 = 159 \text{ home range of adults} = 40$$



LIZARD HOME RANGES 2.025 ha.



Home range based on 50 resightings of  $\frac{24}{26}$  marked lizards = 20.3 m  
= 21.99 meters. With border strip of 22 m = 2.700 ha area occupied.

Various Lincoln Index: Nov. 10 8:10 a.m. O.P.  $21 \times \frac{20}{5} = 84$ .  $\nearrow$  should be 3.47  $\frac{3}{4}$

Nov. 11 A.M. C.A.P. ~~47~~  $27 \times \frac{41}{14} = 79$

Nov. 11 P.M. 5/19/60  $28 \times \frac{62}{42} = 145$

nov 12 ~~am~~ noon 5/people

~~28~~  $28 \times \frac{72}{18} = 112$  4112  
 should be 32/hr NO



1730 ft higher than camp. Set traps at the base of the cliff on the way up; about 25 mouse traps, almost all in mouse-trap at the base of the cliff. Huge rivers of mouse-trap (in floor) covering angular stone blocks - talus, a few specimens of "fig" tree, a few bushes. Near the top is another species of yellow daisy bush with crinkled rough leaves. Arrived at the top at 3 pm and within a few minutes about 8 condors soared over, some as close as 30 ft. - young, middle-aged, and adult - judging by white wing color. Weather overcast. They stayed about  $\frac{1}{2}$  hour, looking me over. Just as 3 or 4 of them had roosted and the others were about to land, 100 goats were driven over the cliff only 50 yards from them, so they left. So did I. At dusk, 8 or more were roosting at the usual spot on the cliff. A few stars at sunset.

Yesterday when the goat herds were milking around the cliffs there were 20 condors in the air at one time.

A large, long-tailed, black-chinned, striped-throated and arm lizard shot? by Benson weighed 37 g.

Nov. 10

Night overcast, and all morning. Traps in the mouse-trap at the base of the cliffs caught 1 mus and 4 Ph. darwini. Grid caught 10 darwini. Marked more lizards on grid in a.m. although not quite warm enough or bright enough for large numbers. Up to 8:10 a.m. had marked ~~21~~<sup>21</sup> individuals. Then went out again from 10:20 to 12:00 and cruised between each row; saw 20 lizards of which 5 were marked over =  $21 \times \frac{20}{5} = \frac{84}{5}$  individuals. Marked 6 of these so that as of noon today there are 27 marked individuals on the grid.



no sun in afternoon either. Some fog around moon pole at 5:30 p.m. but disappeared.

Nov. 11

Night cloudy, and early AM, but cleared and ~~was~~ sunny all afternoon. Went to Taca at 8:30 and returned at 1 PM, a foot in Benson's trap at edge of camp. 8 mice on my grid. Carol + Benson tagged one more lizard in a.m. (= total of 28 color-marked lizards on the grid). At 2 pm, Carol, Ali, I, Sandy, and Anita did 2 sweeps across the grid, <sup>Benson</sup> over on each row, recording lizards. Sunny and warm. Between 2:15 and 3:40 we recorded 62 lizards of which 12 were marked ones. Lincoln Index =  $28 \times \frac{62}{12} = 145$

Carol did counts in the morning and counted 41 lizards of which 14 were marked ones:  $27 \times \frac{41}{14} = 79$  lizards.

at 4 p.m. went down to the ocean with the girls and saw one or more otters plus black lava lizards and red crabs like *Golofops* etc. I came home early with Benson's foot, which we found hiding under a rock with trap on its foot. After I left the girls watched an otter drying its fur in the sand only 12 feet from them.

Nov. 12

Night ~~cloudy~~ and morning overcast until about 11 when it became sunny enough for lizards. So after finishing the plant survey the 4 girls + I did another lizard sweep covering rows A to E on the way north and g-h on the way back, omitting, as before, row F to avoid counting same lizard twice. Counted 72 lizards of which 18 were marked ones.





This began at 11:30 a.m.  $28 \times \frac{18}{72} = 112$  lizards. The grid line transect 6 a.m. had 16 Phyllotis.

Temp. 6" under sunny pine sand among the flowers above the tent at 2 p.m. =  $28^{\circ}$ .

Weights of lizards: large zebra 32g, ditto 26, med. zebra 22, small plain 12, large zebra 44, med. plain 18, med. zebra 26, large zebra 34, med. zebra 12.

No. of hideholes at mouse stations not covered in plant census: A2-2, A3-3, A6-7, A9-2, B4-6, B10-3, C1-2, C2-2, C4-4, C5-2, D3-4, D5-3, D6-3, D9-2, E3-8, E4-2, E6-4, F1-3, F5-4, F7-3, G2-4, I1-2, I8-3, K9-12, K10-2.

Left for Taura 2 p.m., home 6:15 p.m. There had been a couple of showers while we were away, and lots of snow now on rocky mountains to the north.

Evenings, perfume pours down the rocky rivers filled with 4-petal and petunias and man-root.

nov. 13 ~~Taura~~ Tarata. Rain in afternoon, then overcast evening & night.  $\frac{1}{4}$ " of rain in peach can. Lots of snow on mountains north of town.

nov. 14 Morning mostly cloudy, some blue sky. A truck coming from Luro in the night reported 2 feet of snow near our yareta camp. Lots of snow visible from town. Carol's auto drove to yareta at 8 a.m. no snow!

Categories of lizards on Luro study grid:

	<u>small plain</u>	<u>small orange</u>	<u>medium <sup>plain or</sup> orange</u>	<u>medium zebra</u>	<u>large zebra</u>
marked by me					1
on 11/12 census	           		      	           	      
	<hr/> 18	<hr/> 5	<hr/> 14	<hr/> 20	<hr/> 15



Nov. 15 Tarata. Benson put 10 large Sherman and 14 small folding  
snermons out at the Agropeswaria Chacra late yesterday afternoon.  
This morning he had 2 Akodon boliviensis and 12 Ph. magister. nine  
out of 10 large Snermons contained mice; the tenth was flled out in an  
acequia. Day mostly sunny.

Nov. 16 morning clear, no clouds. Ali's jeans soaking in water in patio had  
ice on them, but none on water trough.

a collection of several dozen scats + pellets of fox + burrowing owl  
collected at Mono Sama contained, roughly in sequence of importance,  
Phyllotis, scorpion, Marimora, large bird, large crustacean,  
mus, Akodon? beetle + other arthropod, small bird, lizard. one rat-  
sized femur.

Nov. 17 Tarata. Some overcast.

Nov. 18 mostly clear. Drove up to acequia camp at 8 am and  
counted plants and hideholes. Sunny. Still completely dry, no sign  
of rain. Saw 4 striped lizards during 3 or 4 hours on the area. The analysis  
of plant species revealed an enormous number of species, especially of  
small capsule-bearing plants.

a bright, knowledgeable shepherd who came past looking for a  
lost sheep said that he was 55 yrs old and that the abandoned  
terraces near and above the grid had never been used in his life-  
time and that there were no abandoned acequias to water them.  
Hence, he concluded, it used to rain more. He referred with a  
sweep of his arm to all the unoccupied land and refused to admit  
that the lack of grass (which he lamented) was due to overgrazing.  
Back at 4 pm. Saw no hummingbirds. The big trumpet bushes are almost  
through blooming; many of the seed pods on them contain germs.



Nov. 19 Tarata

Nov. 20 Drove to <sup>10 mi S Tarata</sup> Rock Camp and counted plants. No change in the vegetation although there were some rain drop splatterings on the ground. Llamas were grazing in the dry wash (10,000 ft!). Saw 2 lizards on grid area, one of them a large sceloporus-like, blotchy one. The barberry-leaved thorn bush has a tubular bluish flower about an inch long. Tolamoa & tomatillos still flowering; heard Patagona. 33 species of plants in our best samples.

~~Nov. 21~~ about 20 carnivore droppings from Rock Camp contained worthy fur, including Phyllotis and vizcachas!, also some invertebrates including scorpion, and some seeds.

Nov. 21 Drove to Yareta camp with Carol, arrived just before sunrise over the cliff. Clear & cold in morning, then clouded up about noon. Walked up to the hummingbird cave about 3 p.m.; waited out front for 10 minutes, then went inside. The two nests still there but no signs of hummers. Took photos of Yareta, no signs of spring.

Nov. 22 Señora Zavala, owner of the "our" house, who is about 50 yrs old, says that the terraces high up on the mtn. have not been used in her time or in her grandparents' time. A frost has killed a lot of the corn between here and Acapica camp, as well as in local spots around town here. Most of it 1 to 2 ft. tall. Some potatoes also frost bitten.

Nov. 23-26 Tarata. On 26th in alfalfa terraces at edge of town at 5 p.m. saw a flock of about 30 Zonotrichia capensis. There is a little more singing than when we first came, but not like in Tacna.

Nov. 27 Tarata. Every day has been sunny in morning and clouding up in afternoon. usually with a clear patch under the clouds in the west so that the sun comes through (under) the clouds from about 5 to sunset (5:45),



Drove Carol, Ali, and Sandy to the end of the road on the way to Chucatanain. Road ends about  $\frac{1}{2}$  hour walk above Chistala<sup>A</sup>, which is a tiny village in a ribbon of green irrigation at the bottom of steep bare mountains. Chucatanain is famous for fruits "of all kinds". Some of their pears, which we saw, are more than an inch in diameter!

Dec. 1

Drove with Carol & Peter to Yarete camp; arrived about 8:15. Sunny at first but soon scattered clouds. A caracara found our garbage in less than an hour. Grid ~~the~~ and vegetation looked the same; moisture in soil not far down. Saw one very small Zoogeomys atrichopus maybe 50 yards below the grid; must have been ~~the~~ recent hatchling. Measured some of the biggest yaretes, one covered an area of  $32.4 \text{ m}^2$ . The frost bitten corn above town is still alive but looks awful.

Dec. 3

Left Tarata 9 a.m. Saw 2 T. macrotis at the barest place W of the Yarete camp (about 11 km NE Tarata) and another one with 5 young 1 or 2 weeks old in the tola about 2 or 3 miles south of Chalchopalea. Miserable stoney road from Acomaraca toward Pizacoma. At one point 5 km of beautiful new road, then impassable, so 5 km back to alternate rocky gulches. Stopped for about an hour at a taco spot with fairly large red earth mounds and set 8 snares hoping to get Ctenomys leucodon. Got 4 sprung empties, then Carol found a mound that was not leucodon so we drove on. Two other places had peromyscus-like holes and guinea pigs, but we heard no bubbling calls.

Most of trip from Acomaraca north is beautiful Festuca and/or tola (Leiodaphnium rigidum) with occasional alfalfa swards. Very few people. Saw only 2 vehicles all day (Tarata to Pizacoma). Should have been





full of vicuñas and rheas. Saw none.

Camped at dusk in ichu along a stream at 13,200ft in a red-rock gorge with lots of caves. a Nothoprocta ran off as we pulled in. Day sunny and very warm; Clouds to north and east

Dec. 4

no hummingbirds or nests in about 6 nice caves on north-east side of valley. no Chusquea but numerous leafless orange-red trumpet flowers poking up out of the ground on the steep slopes. Clouded up during the night, all overcast at 5 a.m. Carol looked in caves on SW side of valley and found a <sup>live</sup> baby bat lying on the floor of one; no hummers in the caves but she saw one. Locality shall be known as

4 miles

13 km SSW Pizacoma, 13,200ft.

Dec. 5

Drove through Pizacoma to <sup>Huanabambini and to</sup> Pichupichini looking for tucos - tucos. a gorgeous elevated straight road back toward Pichupichini and a landing strip - has been abandoned, almost impassable. No tucos, neither leucodon nor peruanus. Drove to the border at Desaguadero and waited about 2 hrs. for the advance to finish lunch; a muddy garbage-stream dump. Bolivia offered a striding contract immediately. neat towns, painted pastel buildings, lots of metal roofs, and fields planted and green. Obviously earlier rain here. Gasoline + meat in abundance in Guachi. At supper there, then camped in a field some rain while driving, and road with puddles in many places

Dec. 6

a few sprinkles at dawn. Breakfast in La Paz, then south by paved road through slight drizzle and clouds to Caracollo where we turned east toward La Paz. Lots of bunchgrass (sparse) at the plains, barely good enough to cultivate, but they try. Not many llamas + alpacas. Then over the mtns toward Cochabamba. Much more high country than I had



remembered. Some yareta (with smaller rosettes) sparse bunchgrass, cultivation up to 14,000 ft., not much grazing. Was cloudy, drizzly, or foggy most of the time. ~~We~~ Drove till after dark in search of an acceptable campsite. Ended up on a (hopefully) unused road with tent & car right in middle of the road.

Dec. 7 Clouds disappeared during the night, morning clear. At least 30 people walked through camp at various times during the night. We are on edge of steep canyon with brush, bunchgrass, pepper tree, and various farms in the distance with newly plowed fields, new corn, etc. Our elevation is ~~10,600~~ 10,600 ft., we are at a ~~place~~ place called Chullpakasa, <sup>K</sup> 62, 14.6 miles by road from Parotani (which is 8430 ft.). Took photos of farms and steep fields. Saw dead skunk and guinea pig? droppings.

In the 25 large folding Sherman's set after dark last night I caught 1 Phyllotis wolffsohni.

Left about 8 (a truck wanted to get in the road to collect yareta rocks) and drove down to Parotani, then along the river toward Cochabamba. Camped 10:30 am in molle, acacia, <sup>Prosopis</sup> muña, brush, cactus, 4.9 mi by road from Parotani, 8500 ft. Call it 4 miles direct, north. Also Palo Boracho, Pyreantha. Put out 55 live traps at 3:30; Anita & Carol put out about 50 also. Hot.

Dec. 8. Rain during night, stopping about 6 am. maybe  $\frac{1}{2}$ ". The dry wash by camp with lots of muddy water. My traps held 2 Phyllotis, Anita & Carol each caught a Graculus. Broke camp about 10 o'clock and drove to Cochabamba. Things looking quite green. Left Cochabamba about 6 pm and drove about 15 km along the Santa Cruz road. Camped in acacia Prosopis thorn scrub. Millions of frogs calling in the valley - full of pebbles from rain yesterday. As we sat

—

eating papaya at bat-flying time, an army officer, loaded by rifle barrels/peeking over a rise 20 yds away, strode into camp and wanted to see our documents!

Cloudy at 6 pm, clear by 9, clouded again in the middle of the night, then clear in the morning.

Dec 9

All day on the Sucre road. Goes into almost-all-plain country between Cochabamba and Espigara. Espigara to Sucre is mostly thorn scrub, a curious "savannah" of bare red earth and stones with widely scattered trees of many kinds including molle, acacia, etc. Enough rain so that everyone is plowing and planting corn (behind thorn-branch fences). Some corn here high and in a few places, especially along the Rio Grande or one of its tributaries, ready to pick. The town of Totora is charming, all tile roofs. In the absence of <sup>adequate</sup> any sort of maps of Bolivia, we bought a big wall map in Cochabamba. It turns out to be ludicrously absurdly inaccurate. A few sprinkles during the day. Camped along the river at about km 45 from Sucre in bare-ground thorn forest. Overcast. We didn't actually see many goats during the day, but lots of browse vines and absence of ground cover in spite of enough rain to raise corn.

Put out about 25 small Sherman traps at 6 pm in a dry wash with thorns, larger trees, big & skinny Cordobaca cacti, and spiny ground bromeliads.

Dec. 10

Nothing in traps. Numerous flying around camp at night. Drove to Sucre then ~~west~~ toward Potosi but turned south before Potosi to Puna. South of Puna is a particularly good example of the country



being cultivated for corn and algar: the ground stoney and bare  
bare bare. How come enough rain for corn but nothing else grows?  
Camped in an almost bare area with fields, <sup>a few</sup> cacti and a few acacia  
trees <sup>at</sup> Otavi.

Dec. 11

Rain during night. Drove along valley thru Camargo etc. Flat  
tire in plaza of Abecia. <sup>English sparrows</sup> Stopped for the night in a broad dry  
wash ~~of~~ with many nice big acacias and some bushes in  
the flats and many kinds of cactus, palo verde, and various thorns  
on some hillsides, other hillsides bare. Put 24 small shermans  
among bushes up a dry wash, and 12 more plus 5 large shermans  
on a cactus hillside. Night partly hazy. Anita & Carol put about 50 leg. sh.

Dec. 12

Hazy at 5:30 a.m. but clear by 6:00. 2 Phyllotis <sup>alongside</sup> bushes  
in the dry wash but nothing among cactus. Both Anita & Carol had  
found ? Oryzomys ? droppings among cactus, and good holes,  
but caught nothing. Our camp is between La Caverna (a big) and  
what appears to be a long up grade toward <sup>Placayachi</sup> ~~La Caverna~~ (Prov. of Tarija),  
10,000 ft. Drove <sup>to Placayachi</sup> ~~to La Caverna~~ through rich cactus then bunchgrass, then  
toward Villazon - La Amica through spectacular steep stony canyons.  
arrived Villazon about 3 pm, got through customs at b. Collected  
4 lizards on stony plains near 2 lakes with flamingos <sup>east</sup> ~~west~~  
of Villazon. Camped on open puna about 10 miles south of La Amica.

Dec. 13

Light rain during night. Drove to Tilsa and camped among willows,  
molle, bushes, & fields  $\frac{1}{2}$  mile north of the town. Set about 50  
small and large shermans along walls in the town on three separate  
pieces of trap line. Some molle trees, some willows, some bonbardy  
poplars. Anita & Carol put traps along walls in the dry wash  
(Gorganta del Diablo), and Peter put traps along the cemetery walls.





- Dec. 14 Considerable rain during the night; lots of water coming out of the Garganta, but almost stopped by morning. My traps had about 3 mus, 1 Rattus, and 6 Phyllotis caprimus (including a couple of Andinomys). Other lines had about 4 caprimus and/or andinomys.  
Packed up soggy mess and drove to Tucuman. Camped outside of town on road to Ag. Station.
- Dec. 15 no rain. Did 8 skins + chromosomes, then drove south and camped near the summit between La Viña and La Merced. Very hot, even at night. Remaining mice died of heat. Put out about 25 large shrews in dry thorn-scrub - quebracho forest. lots of ants. Large yellow + blue + dark fays
- Dec. 16 nothing in traps. Hot all night. no rain. Drove to Catamarca and Chumbicha. arrived Chumbicha about 1 pm. Very hot & humid. no place to stay and no enthusiasm to stay, so picked up mail and returned to Catamarca.
- Dec. 17 Catamarca. Doctor for Ali etc. Very hot.
- Dec. 18 " \* Our room in hotel was 35° at midnight, about 32° outside the window.
- Dec. 19 moved to Hosteria at La Concepción, 3200 ft., <sup>25 km NE Chumbicha</sup> 37 km SSW Catamarca. Still hot.
- Dec. 20 native vegetation is thorn scrub and huge open trees. also lots of planted English walnut, olives, ~~and~~ corn, shade trees etc. about 40 traps in dry wash behind the Hosteria caught 2 mus (goats). still hot
- Dec. 21 Traps along the river and a few in thorn scrub caught one juvenile Graculus. nine steel traps and 6 museum specials in white-washed runways under thorn goat fences and containing



hystriomorphs droppings caught 1 small guinea pig + a  
windstorm came up during the night and cooled things off.  
In morning there was a curious yellow haze all the way to  
Catawara. nothing in Carol's traps. DOR Gracings & last.

Dec. 22 about 60 traps in thorn-cactus and in a grassy gully  
in an olive grove caught nothing. Carol + Anita about 50  
more in thorn-cactus caught nothing. To Chumbicha + back.

Dec. 23 met Mike + Lynn Wares in Chumbicha and drove to the  
pass between Chumbicha and Uragan. Camped in what is  
probably ecotone between chaco and monte. Lots of thorn trees,  
bushes including *Fazarea*, cardón, and spiny-leaved ground  
bromeliads. Saw tinamous and small gray fox. no people for  
miles. I put traps at a small rocky outcrop, along a dry wash,  
and 2.1 miles down the road toward Chumbicha at two rocky  
talus slides. Anita + Carol put traps also in thorn, grass,  
<sup>low</sup> *Opuntia*, mesquite, and talus. Clear + warm.

Dec. 24 17 km NW Chumbicha, 3750 ft. The traps down the road are about  
16 km NW " , 3500 ft. Camp is near km 1145. night clear calm.  
Carol caught 1 *Ph. darwini* in rock slab with cardón + bromeliad,  
Anita 1 Gracings in ground *Opuntia*, and I caught 1 akodon  
in talus and 4 *Phyllotis darwini* in talus. at 6:30 put out

~~Dec. 25~~ 60 traps up the road in *Fazarea*, cardón, and low *Opuntia* (equal numbers  
of MS, small *Shermans*, and small folding *Shermans*). Carol + Anita also  
put out about 20 large *Shermans* etc. This is 5 miles up the road at  
4400 ft. also about 20 traps in a brushy gully 2.6 miles up the  
road at 4100 ft. Carol + Anita set here also. Anita + I also had  
about 20 traps each near camp, mine mostly in a talus



sled with spring bowhairs, cards and bushes. Temp. very warm. night clear.

Dec. 25 Nothing in anybody's traps. Ali has seen more tinamous. also 2? families of a half-dozen small owls. Lots of bats flying in evening, but we know of no water for miles. Still no evidence of people other than traffic on the roads.

At 6 pm Anita & I set about 150 live traps in scrub & palms about 12 kms SW Chumbicha. The palms seem to be the center of action, with <sup>mouse</sup> droppings and numerous diggings under them. Saw capeton tinamou. Temp. in Chumbicha at 5:30 was 42°.

Dec. 26 Nothing in traps, but one group in Anita's traps near camp. Drove to Andagolá for lunch with Mares and Beryl ~~Vicelmin~~ Vicelmin, then camped at the Cuesta de Zapata between Belén and Tinogasta, 1875 m. Carol & Anita put out about 50 traps.

Dec. 27 Traps caught 4 mice (2 Graculus + 2 Ph.). Vegetation grass bushes and pink granite. Drove through Tinogasta & Fianbala, then toward Paso de San Francisco. Camped at 13,300 ft about 122 km NW Tinogasta, a pampa with stream, good altiplano. Camped in unoccupied hut. Anita put out about 25 large shermans.

Dec. 28. night clear, barely freezing. 4 Phyllotis darwini and 1 akodon ardesius? in Anita's traps. Left early and drove to Copifó, arriving about 5 p.m. From Fianbala to Piquino, (a couple of links in a salty river bottom ~~at~~ an hour or so east of Copifó), ~~at~~ a distance of 400 km ±, we saw no vehicles and only one person - a man driving a couple of loaded burros. We recognized



no permanent habitations. Saw about 4 flocks of rheas, and saw lone guanaco twice. A cordón took off from hummocky ground near the road; no food there. There is some small-*ichu* country approaching the pass from the east, but essentially nothing ~~from~~ on the west side of the pass all the way down to Copapo. Laguna Verde is salt, thermal, Tabo blue, with flamingos, ducks and phalaropes; no vegetation around it.

Camped on beach north of Caldera.

Dec. 29 Drove through autofoquia (4 hrs to get visas etc) and camped at midnight in nitrate jungle in Tarapacá north of Victoria. Only vegetation from Copapo was a "forest" of planted algarrobos? in southern Tarapacá, but we passed <sup>it</sup> ~~them~~ at night.

Dec. 30 Arrived Arica about 11 a.m. Drive shaft bearing finally gave out in downtown Arica!! Fixed by 1 p.m. and drove to Tacna to put Anita + Ali on plane. Camped at our Tillandsia study area outside Tacna. Sky almost clear, <sup>breeze</sup> wind at 7 p.m. from Tacna.

Dec. 31 Sky almost clear at 6 a.m., no dew, breeze from inland (north). Our footprints on the study area are still almost but not quite fresh. The ground here is sandy on the surface, with quartz crystals etc, but powdery underneath. Obviously wind-swept by gentle breezes. Stamping your feet stirs up dust. The powdery soil goes down at least a foot. No flowers on the Tillandsia.

Drove to Tarata and then up to Yacota camp. Brief but fierce





Pearson  
1972

Jan. 1 Hailstorm at the Queñua camp (12,900 ft) at 1 p.m. Yareta  
camp was on-off drizzle all afternoon, evening calm + cloudy.  
About  $\frac{1}{4}$ " of hail-snow during night; water with skins  
of ice. Vegetation looks same as on last visit except maybe  
the notolrichs look greener + larger. <sup>Windy</sup> No hummers seen at cave.

Drove down to Queñua camp at 8:30 a.m. Ground damp,  
vegetation same, a lizard still under the rock. The tallest queñuas  
are 12 ft. but only a few as much as 10 ft. Windy.



Sherman  
1971

Species account

Abrocoma cinerea

- Sept 11 6 km NE Tarata, 12,900 ft. Large Sherman set at large opening in a rock retaining wall below road and baited with ripened rolled oats and cooked corn caught a large Abrocoma between 6 and 8 p.m. Docile in trap.
- Sept 12 Put into screen cage. Very docile, ate blossoms and leaves of ~~Euphorbia~~ Lepidophyllum quadrangulare as soon as offered, but ignored Baccharis, Senecio, and cactus. A Phyllotis magister was caught in a trap a few feet away, and at 8 p.m. a Bolomys bealei was in the same trap; released.
- Sept. 13 Bolomys again in the trap at 6:30 a.m., removed. There was a half-cup of Abrocoma droppings on the floor of the hole in the wall (4 feet above ground). Droppings look like viscous, some with longitudinal lines.

On our way back from the cumbre we stopped at our camp at 6 km NE Tarata and there in the barest flattest least rocky part of the puna was a <sup>newly</sup> squashed Abrocoma cinerea. Between 6 and 10 vehicles had passed during the dark hours.

Our captive continues to be completely "plastic," likes to be handled. Have tried him on a great assortment of foods but he has eaten only ~~two~~ stems + blossoms of Lepidophyllum quadrangulare and carrots. At night he makes a very soft, mellow, guinea pig-like sound.

- Sept. 25 Took him up to 12,600 and released him under Lepido quadrangulare. He ate Lepido, a tiny succulent yellow-flowered forb, a few leaves of Phyllis, and bark + a few twigs of Ephedra.

- Sept 26 ate lots of Phyllis overnight. It obviously ate only late at night (4 a.m.?)



Pearson  
1971

Athrocara cinerea (cont.)

Oct-3 13km NE Tarata, 14,700 ft. Have been putting the Athrocara out to  
graze: he likes the galls on Lepido, quadrangular, leaves of  
yareta from shady spots, leaves of the straight-leaved shrubby  
Serecio, mottled leaves of Nototrichs,



Pearson  
1971

Species account  
*Lisaeum multiformis*

- Oct 3 See journal
- Oct 4 yesterday evening compared temp. performance of a *L. altheodor* and 2 juv. *multiformis* of same size. In air in shade at 5:20 p.m., both equilibrated, both totally immobile; air 4°C.
- This morning, after burying them overnight to prevent freezing, put them out on burlap in sun at 8:09; shade 7°, burlap layer 19°, breezy. at 8:13 all 3 ran off when touched. Put them back in plastic bag in shade 8°; at 8:29 body temp 9° ran unstably and righted (both spp.). at 8:33 in shade 6° can walk, body temp 6°. *multiformis* opens mouth, but not *altheodor*. at 8:37 into sun 8:38 still sitting in spite of prodding; 8:39 dither; 8:40 dither; 8:41½ all lively, body temp 17°.
- Down the road under the rock where AK and Ali caught two and banded yesterday, at 9:50 a.m. a baby lizard ran under it; temp. under it was 6°. Looked under oodles of rocks thereabouts but nothing else. Big ones in damp places have frost under them, numerous large spiders.
- at 10:15 a big ♂ ran under big rock into shallow burrow: his temp 31°, burrow 4°, air 8° (shade). Sunny. Moen watched the 2-tailed ♂ from the rock of yesterday. Grazed on seep forbs, when cloud covered sun he ran onto flat rock.
- Oct 7 The huge ♂ from 13 km NE Tarata that Ali has tamed (in one day) and is living in the patio weighs 30g and snout-vent 98mm. Eats flies, so far we have not seen it grazing. also eats ants.
- Oct 15 Photoed the one under the small rock in the pampa at 12,900'. The Ali's captive, he has become quite tame and permitted Benson to photo at 2 feet distance. He was out with shade at 4°C.





Pearson, O.F.

1972

Journal

Calif.



Pearson  
1972

Hastings Reservation  
Carmel Valley, Monterey Co.

June 7

Put out museum specials on all Colham lines 3-7 pm, baited with peanut butter. Weather coolish but mostly sunny. Very few good runways in the meadow, and no mouse whitewash. Doodles of gophers.

It has been a very dry winter, vegetation short & sparse but oats still greenish, saved by a  $\frac{1}{2}$ " of rain in May. The gopher enclosure in Pearson Field has much more accumulated dead vegetation than control, and somewhat more Bromus, a gopher that got in about 2 weeks ago has apparently been poisoned.

June 8

Night clear and cold, at 6 a.m. Chaparral line had 9 P. truei (none breeding) and one Neotoma. Meadow line nothing. Oaks line 1 P. truei (pregnant).

When setting out the traps I was about 16 traps short, so distributed the shortage equally over all 3 lines. Every stake has at least 2 traps, however.

Day sunny and cool. at 4 p.m. a wren-tit and a wren in the Chaparral line, nothing in the others.

This morning there was light fog on top of Haystack Hill, grass wet enough to wet shoes and pants, but not dripping wet.

June 9

Night cold, mostly clear, grass not wet. at 6 a.m. Chaparral line had 3 Truei; <sup>Neotoma</sup> meadow line 1 Neotoma and 1 Reithro, and Oaks line 1 Truei. Clouded up in afternoon and light drizzle for part of afternoon and evening.



Leaven  
1972

June 10

June 10 Hastings Reservation. Clear overnight, cold, light frost along creek. at 6 a.m. Chaparral line had 1 tree ad 2 Peromyscus californicus ad 1 brown towhee, nothing in other lines.

Yesterday early morning in the field along road (with burned stump) saw 4 adult turkeys ad > 18 young about 3 weeks old.

The acorn collection garbage cans were installed in June, 1968. av. inside diameter of 2 diameters at rt. angles on each of 5 receptacles was 19.92 inches.

Nov. 3, 1968 - a total of 4 acorns, all with worms.

Nov. 3, 1969 - no acorns.

Nov. 1972 (probably 1973) - 30 acorns, 12.6g dry wt.



Pearson, O.P.

1973

catalogue

#4990 - 5089

Peru





OP Pearson  
1973

Catalogue  
5 mi ENE Camaná, Dept. Arequipa, 3000ft.

March 9, 1973

4990 ♀ *Phyllotis darwini* <sup>pelvis not open</sup> <sup>vagina open. uterus wide - estrus?</sup>  
4991 ♂ " <sup>testis 9mm; SV 14</sup>  
tail truncated before captured [180] x [71] x 26 x 24 40gm

4992 ♂ " <sup>testis 11mm</sup>  
210 x 108 x 25 x 23 35gm

65 km. W. Tarma, 2000ft., Dept. Tarma, Peru  
March 11

4993 Scuf lizard. meat picked for S. anal.

4994 " " " " " "

4995 " " " " " "

4996 *Tropidurus peruvianus* " " " "

4997 Scuf lizard

4998 *Tropidurus peruvianus*

4999 Scuf lizard.

~~5000~~ 65 km W Tarma, 2000ft., Dept. Tarma, Peru

5000 *Tropidurus peruvianus*

5001 " "

saved most of all of above for Sarah.

March 12

5002 ♀ abdomen <sup>shot at night. Vag. not open</sup>  
162 x 64 x 21 x 15 27g.

5003 ♂ " <sup>shot at night</sup>  
146 x 62 x 22 x 15 19½g.

5004 ♂ *Phyllotis* not breeding

5005 ♂ " " "

5006 ♂ " " "

5007 ♂ " " "



OPP

1973

March 13

skull only	♀	<i>Phyllotis</i>		vagina closed; uterus w scars
5008				220 x 110 x 24 x 24 34.g.
skull only	♀	"		vag. not open; uterus juv.
5009				[170] x [83] x 23 x 23
skull only	♀	"		vag. closed; ut. w scars
5010			lots of mesenteric fat	222 x 111 x 24 x 25
skull only	♀	"		vag. not open; ut. juv.
5011				192 x 98 x 23 x 23 27g
skull only	♀	"	fat	vag. open; ut. juv.
5012				212 x 111 x 23 x 22 35g
skull only	♀	"		vag. not open; ut. juv.
5013				195 x 100 x 24 x 23 28g
skull only	♀	"		vag. not open; ut. juv.
5014				194 x 99 x 24 x 24 26g
skull only	♂	"	belly white, tail pale	<del>skull only</del> ; testes 4; SV tiny
5015				[184] x [85] x 26 x 25 36g
skull only	♂	"		testis 3m; SV tiny
5016				201 x 105 x 24 x 23 28g
skull only	♂	"	belly + tail pale	flabby testes 7; SV-6
5017				225 x 106 x 25 x 24 50g
skull only	♂	"	belly + tail pale; intest. messy	testis 4; SV tiny
5018				225 x 119 x 25 x 26 38g
skull only	♂	"	intest. messy	210 testis 3; SV tiny
5019				<del>225</del> x 106 x 24 x 25 30g
skull only	♂	"		testis 7, flabby; SV-8
5020				225 x 113 x 25 x 23 41g.
skull only	♂	"		testis 3; SV tiny
5021				207 x 100 x 23 x 23 35g.
skull only	♂	"		testis 3; SV tiny
5022				202 x 100 x 25 x 24 30g
skull only	♂	"		testis 7, white, big fat pads; SV-6
5023				218 x 112 x 25 x 23 35g.
skull only	♂	"	belly + tail pale	testis 4; SV tiny
5024				204 x 105 x 26 x 23 30g.
skull only	♂	"		testis 4; SV tiny
5025				202 x 96 x 24 x 23 34g.
skull only	♂	"		testis 3; SV tiny
5026				189 x 93 x 24 x 23 26g.
skull only	♂	"		testis 3; SV tiny
5027				189 x 98 x 24 x 24 24g
skull only	♂	"		testis 3; SV tiny
5028				215 x 110 x 25 x 23 32g
skull only	♂	"	tail dark, pectoral streak	testis 4; SV small
5029				243 x 120 x 28 x 26.5 46g
skull only	♂	"		testis 4; SV tiny
5030				224 x 116 x 24 x 25 38g
skull only	♂	"		testis 4; SV tiny
5031				[164] x [54] x 25 x 24 38g
skull only	♂	"		testis 4; SV tiny
5032				[210] x [103] x 24 x 23 36g.
skull only	♂	"		testis 3; SV tiny
5033				204 x 105 x 25 x 24 30g
skull only	♂	"		testis 3; SV tiny
5034				205 x 106 x 24 x 24. 28g



OPP  
1973

skull only	5035	♂	Phyllotis	testes 3; SV tiny	194 x 92 x 24 x 24	30g
skull only	5036	♀	"	vag. not open; uterus juv.	186 x 93 x 22 x 23	23g
skull only	5037	♀	"	vag. not open; uterus juv.	177 x 91 x 25 x 22	20g
skull only	5038	♀	"	vag. not open; uterus juv.	219 x 107 x 26 x 23	39g
skull only	5039	♀	"	vag. not open; uterus juv.	245 x 125 x 27 x 25	43g
	5040	♂	" sp.	test 6 mm, SV 5 mm	266 x 138 x 28 x 25	58g.
	5041	♂	" "	testes 4 mm	244 x 128 x 28 x 25	48g.
	5042	♂	" "	testes 4 mm	246 x 128 x 29 x 24	59g.
	5043	♀	" "	uterus juv.	224 x 115 x 18 x 24	42g.
	5044	♂	abscond	testes 4 mm	148 x 64 x 21 x 14	20g.
	5045	♂	Phyllotis darwini	fat.	204 x 103 x 24 x 24	35g.
skull only	5046	♀	" "	vag. not open. uterus juv.	184 x 93 x 22 x 24	24g.
skull only	5047	♂	" "	testes 3, SV tiny	206 x 105 x 25 x 23	31g
skull only	5048	♂	" "	testes 4, SV tiny	220 x 118 x 25 x 25	30g.

few if any of the above with scarred tails or signs of fighting.  
1 mile east Challapec, 4000m, Dept. Tacna, Peru

	5049	♂	<i>Isoetes multiflorus</i>	March 17 Telerated and squashed.		
	5050		Bufo	March 18	tethered in temperature of environment on 3/18/73. Use of dehydrator	
	5051		"	March 19	Used in experiments with Telerater No. 2.	
	5052	♂	<i>Isoetes</i>	March 23	Telerated + painted	
+ protein	5053	♂	"			
+ protein	5054	♂	"			
+ protein	5055	♂	"			
+ protein	5056	♂	"			
+ protein	5057	♂	"			



5058 Toad *Pseudoeurycea*

5059 Toad

5060 Toad *Pseudoeurycea*

5061 Toad

5062 Toad

5063 Toad

5064 " *Pseudoeurycea*

5065 " "

5066 Toad *mini*

5067 Toad

5068 Toad

13 km NE Tarata, 14,500ft<sup>2</sup>, Depto Tarma, March 25

skull + lungs

5069 ♂ *Phyllotis darwini*

breeding

skull + lungs

5070 ♂ " "

breeding

skull + lungs

5071 ♂ " "

breeding

skull and lungs

5072 ♀ " "

pregnant 1 + 1 emb

skull + lungs

5073 ♂ *Phyllotis darwini*

65 km E Tarma, caught March 13, killed March 25

captured same March 13 at alt.

Testes 1.6 cm, SV little

captured same March 13 at alt.

non-breeding ♂

skull and lungs

5074 ♂ " "

Cafazo, 13,500ft<sup>2</sup>, Depto. of Puno, Peru, March 25

5075 3 Toads (*mini*)

"in town square" of Cafazo

1 mi. E. Challapalea, 13,200ft<sup>2</sup>, Depto Tarma, Peru

March 25

5076 Toad

used in temp. test on 3/24 and 3/25

5077 *Liolaemus*

" " " " " " " "

5078 Toad

5079 Toad

5080 " *mini*





5081 ~~Toad~~ *Pleurodema*

5082 " *mini*

5083 " *mini*

5084 " "

5085 " "

5086 " *Alouatta*

5087 " *Alouatta*

13 km NE Tarata, 14200ft., Dept Tacna, Peru

March 25, 1973

5088 "

5089 *Zilaeus mozerandi*

The individual used for temperature integration. Died in Berkeley 4/3/73.



Pearson, C. F.

1973

Journal

Peru



Pearson  
1973

Tillandsia study area, Dept. Lima, Peru

March 7

Tillandsia Garden #

on ridge

I

~~base concave~~

dry bulb 85°; wet bulb 75°

dry, bright, sunny  
from coast

H

with  
seed  
pods

G

F

E

D

B

with orange rattle seeds  
C flower

A = 4 new side sprouts, + big center shoot  
quite dry. Lots of dead mat. ~~470 gr.~~ (460)

B: 3 heads ± 8 rows dead leaves, old dried flower  
head. ~~475 gr.~~ (475)

C: orange flower head; single. ~~320~~ (305)

D: big double head; old dried flower stalk  
about 9 rows dead leaves. 480 gr.

E: 2 heads, lotsa dead leaves. 335 gr.

F: little single; 3 rows dead leaves. 60 gr.

G: Big single; 2 new little center shoots. 1 centil  
green seed stalk. ~~370 + 110 = 4~~

250 + 265 = 515 gr

~~265 235~~

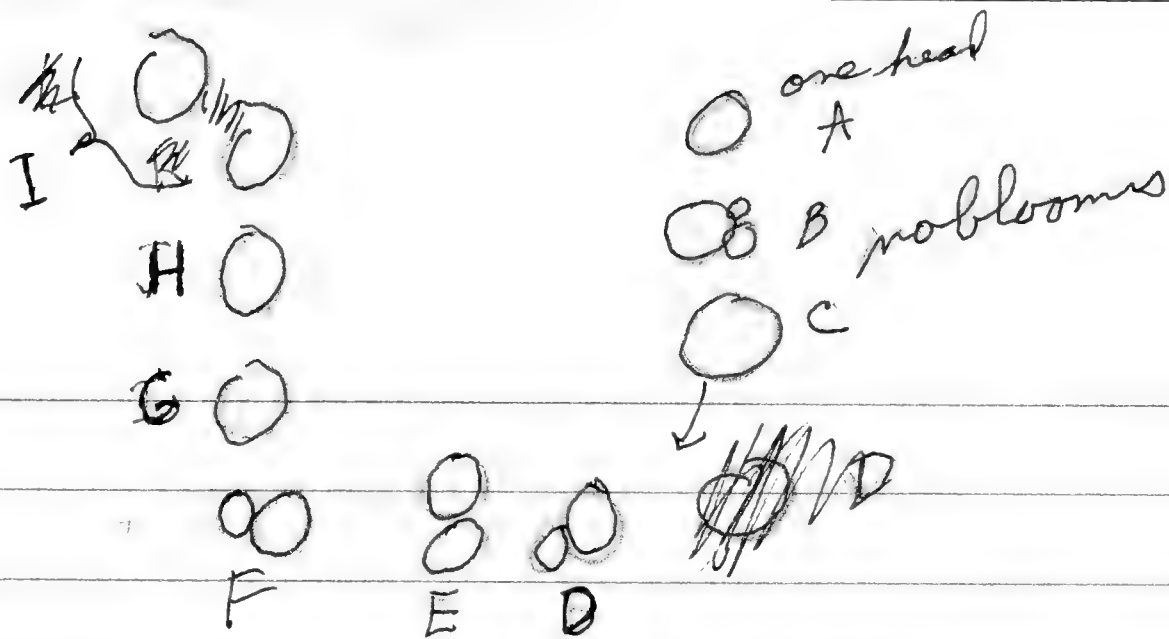
H: 2 small heads: lotsa dead: 120 gr.

I: 2 heads with dried seed pod; lotsa dead ~~120 340~~ <sup>155 385</sup> 510



1973

Garden #  
hillside



A - 160g,  $\pm$  12 layers dead.

B - 2 big heads, one little 355  
dying side head. 225  $\rightarrow$  580

lotsa dead.

C - single head, 405 grams.  $\pm$  11 rows dead.

D - two heads, old dried seed pod : 405

E. two large heads 280  
245  $\rightarrow$  525

F: two heads, lotsa dead. 350 g

G: single,  $\pm$  12 rows dead : 375 g.

H: single, 9 rows dead 210 g.

I: widely separated double. 345  
lotsa dead 270  $\rightarrow$  615

The Tillandsia <sup>study</sup> area in general was quite dry. numerous tracks of Burlemus, a few mouse tracks, saw one lizard. ants saw a big orb-weaving spider. Dave found some "young" Tillandsia plants, especially a couple in cracks in rocks, with "roots". Perhaps the seeds blow into these cracks, and there are the places where seedlings get started. If so, Sandy hills with Tillandsia on the sides should have rocks above somewhere.

Drove south and camped after dark about 10 mi. S. Sea. no vegetation. Two foxes on edge of camp during night.





1973

and heard bare owls and bats.

March 8 Drove south. Many of the lowas are green, and the one at Atiquipa looked like rolling hills of Ireland; some grasses, some forbs, blooming *Grindelia*. Camped at dusk 5 mi. ENE Canana, Dept. Arequipa, about 2,000 ft. Good lowa vegetation, an 8" timothy-like grass in bunches plus woody "aninals?", oaks, a very few low cacti. Heard bare owl and bats during night.

March 9 Saw a mouse run into a hole at dawn. Dug him out with first or second shovelful; a very light reddish soil. a *Phyllotis darwini*, breeding male. Numerous other burrows nearby, some of them quite large as though made by something else (*Dipodomys*?), and with runways emanating from them, cuttings, mouse droppings, and footprints in front of them. Dug out two more *darwini* easily. Some others too deep and too big. Saw snipe, lots of furcariids.

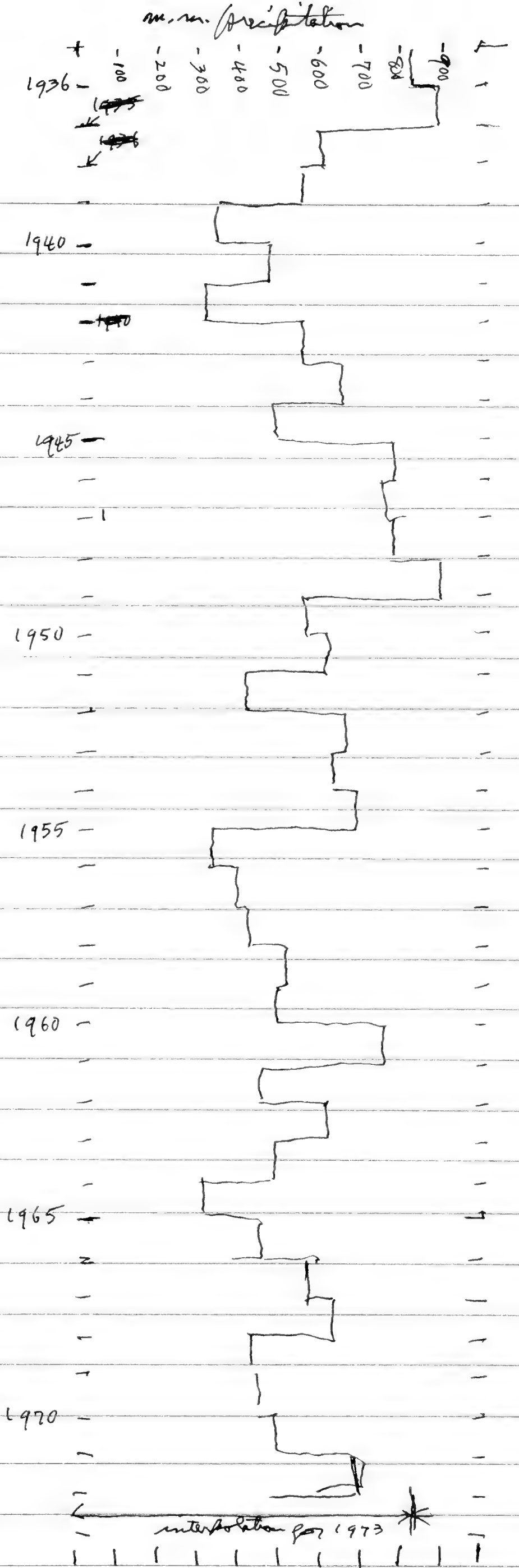
Drove south, through Moquegua. All rivers with lots of muddy water. Miles of green lowa between Moquegua and Tacna, also miles of dried up lowa vegetation. Arrived Tacna 4 pm.

March 10 new radiator etc. in Tacna. anti-freeze at the Ford agency. The big box of equipment went into the living-bedroom of the manager of a parking lot on Calle Deustoa about 2 blocks north of the main drag. The truck will be parked in that lot also when we return. Left about 9:30 for the coast.

Our old lowa study site is much drier than when we were here before in October?, 1971. The *Grindelia* bushes



rainfall for 37 years at Santa. Trust from El Comercio, Lima, 9 March, 1973, p. 3. Staffed article  
 by Eduardo Andujar. He interprets it as revealing 3 "Ciclos Peruanos" (1948-1949, 1960-61, 1973





are the only real greenery on the study area and around the campsite. The bushes up near the top of the ridge appear to be green and the vines of cucumber vines are green up near the top of the ridge but not down low.

Hunted hawks for Savich, both around camp and down at the ocean. Both species abundant. The Tropidurus peruvianus around camp were wild about watermelon, and ate the pulp and seeds avidly. Many turkey vultures, a few condors up on the cliff, several (5 or more) burrowing owls cavorting around camp. 13 condors on cliff at dusk. Saw 1 vulture, 1 other small bird.

On the sandy desert there are numerous still green clumps of grass, but all the annual herbs are dried up. Never more than 8 inches from tracks - lizard or mouse or both. Anita saved up some mice around a huge boulder in the sandy part, and we caught 4 of them (P. darwini).

On our cobbled grid area the only green is Grisebilia, with a few of them blooming. All the herbs and grass dry.

Just before dark I put out 26 small shrews baited with whole corn on the old study grid among the cobbles. I have Bradford put out a line of 12 traps, mostly below the road. Anita put out 20 large shrews. <sup>(big shrews)</sup> night clear, lots of stars.

March 12 Moon half full, set about midnight. Shortly after midnight Anita became aware of mice running around



sleeping bags, and Dave was already fighting a pitched battle with them. We all got up and swooped around with flashlights. The watermelon rinds, cantaloupe rinds, and stale bread thrown out in front of the tent were swarming with Phyllotis. a dozen could be seen in an area of 400 ft<sup>2</sup> with one sweep of the flashlight. many of them were fearless and would continue eating only 6 ft. from an observer. They shared food and did not squabble. no squeaking. Walking up and down the red and roundabout revealed fewer mice than near camp, but still lots. Went back to bed about 1:30, but mice still scampered occasionally over my sleeping bag. While footlighting saw 3 Abodon, shot 2 of them. also thought I saw 2 mice, but they were much scarier than the Phyllotis and the Abodon. Dave tried to defend himself by setting 13 large Sherman around his bed. When a mouse got caught in one, he would throw it down over the foot of his sleeping bag and set another one. In the morning, there were 7 full traps around his bed and 7 at the foot of his bed!!

My 26 traps had 11 Phyllotis and 2 marumasa, Anita's 20 traps had 11 mice, and Dave's 12 traps had 12 mice. Saved all of them. 4 of them are embalmed for lung tissue. one of the 4 looked like a magister with pectoral brown and dark tail and coarse fur. Not counting Dave's bed line, 58 traps, 34 Phyllotis, 2 marumasa, 1 Abodon.





Dave climbed up to the Condor cliff, leaving camp before daybreak. Saw and heard lots of mice on his way up to the cliffs.

at about 6:30 am I did a slow walk down our grid and back looking for birds, plus a detour to the canal above camp. The bird scene is dominated by the groups of rip burrowing owls. Saw 2 or 3 wrens and about 4 Phrygilus cloudinus, nothing else.

Both Dave & I in the middle of the night heard a burrowing owl coming overhead and while trying to see him saw a faint flash of light! apparently excavating from the owl.

We all agree that the mouse invasion didn't start until after the moon went down (about midnight).

Drove to Tacna for shopping, then to Tarata. a little water in the river at Rock Camp (10,000 ft.), and a little green on the hillsides. Arrived at acacia camp (11,500 ft.) (mountain scrub) at dusk, cloudy, but cleared during the night.

March 12 Mountain Scrub. Lots of dew, no frost. Clear. The campsite is a green carpet, damp or soggy. Lots of green bushes and flowers. Cantua bushes not blooming, and greenthorns not blooming. Saw a "flock" of 6 Patagona chasing each other, walked over part of grid and saw porcupine on ground, Geothlypis cane-bill, Athene, orange-backed thrush. Zonotrichia ~~saturata~~ <sup>singing</sup> ~~not heard~~. Quite a bit of grass and lamn clover on grid. Tallest cacti are 8 ft; no cactus blooms. Numerous puffballs up to 1 inch diam. Lots of yellow-flowered daisy bushes, surely



Grudelia. Saw no lizards. Reservoir empty, hardly any flow in the acequia.

Skinned mice. There seems to be a big coarse, dark-tailed form as well as Pli-larvini. One of the dark ones was the only one to slip his tail whilst was killing them.

The mountain scrub area has lupine. Saw one alticola and Dove saw owl. Have seen only one or two deer.

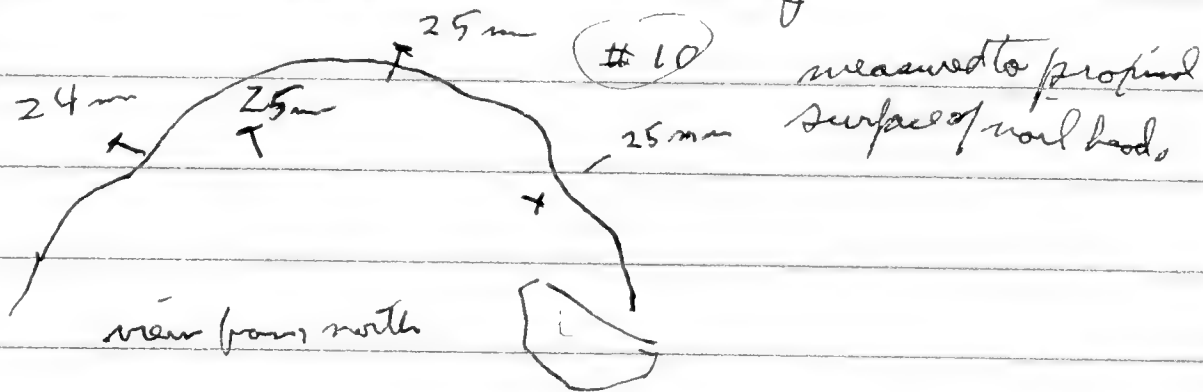
March 13

Night mostly cloudy, but clear at 5:30 a.m. minimum 40°. Yesterday's high was 70 but felt much better. Have seen no more Patagona, so essentially they are not here at this season. Skinning etc. Clouded up about 4 p.m. night mostly cloudy but cleared about 4 a.m.

March 14

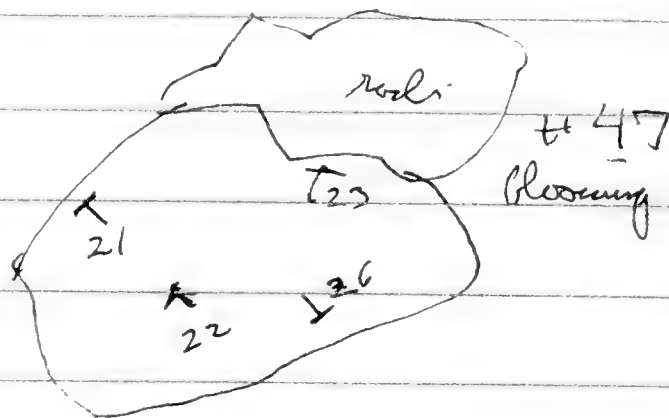
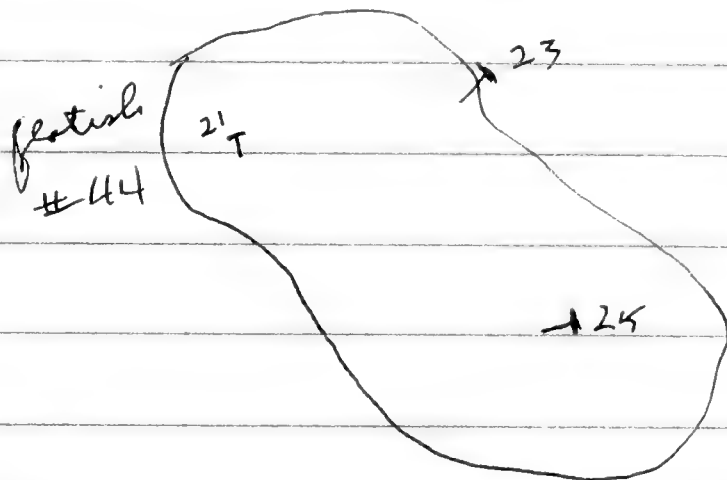
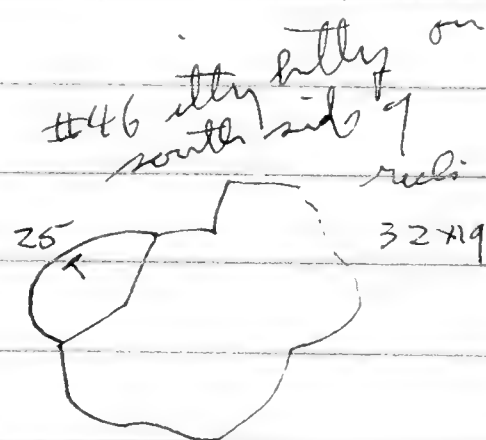
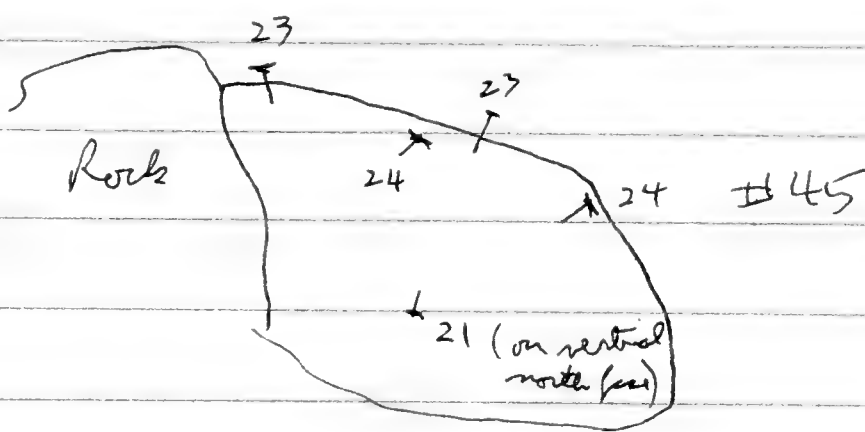
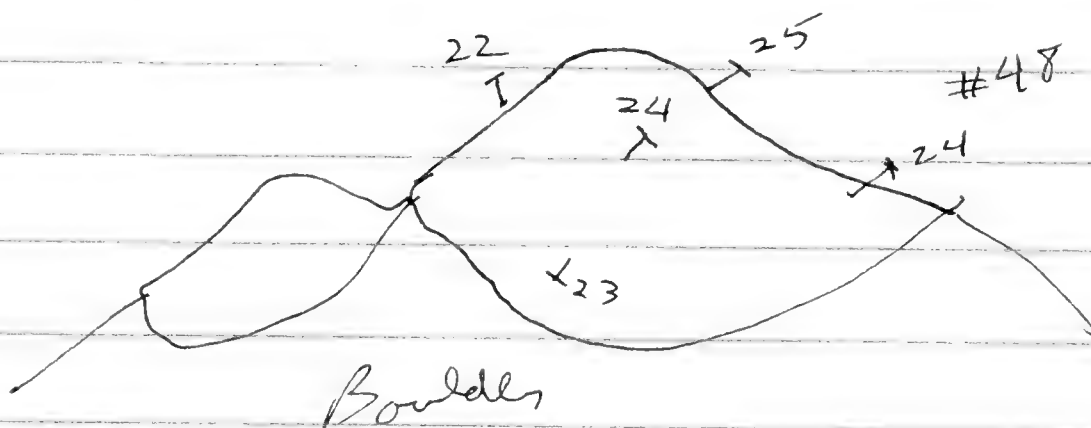
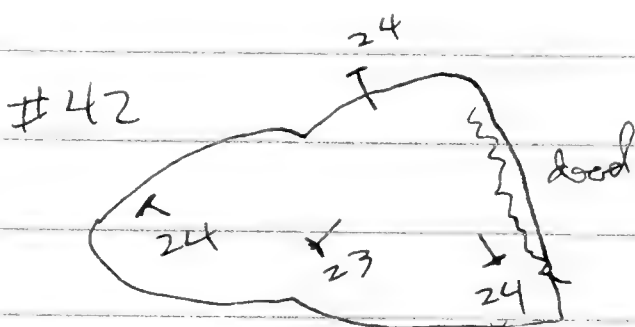
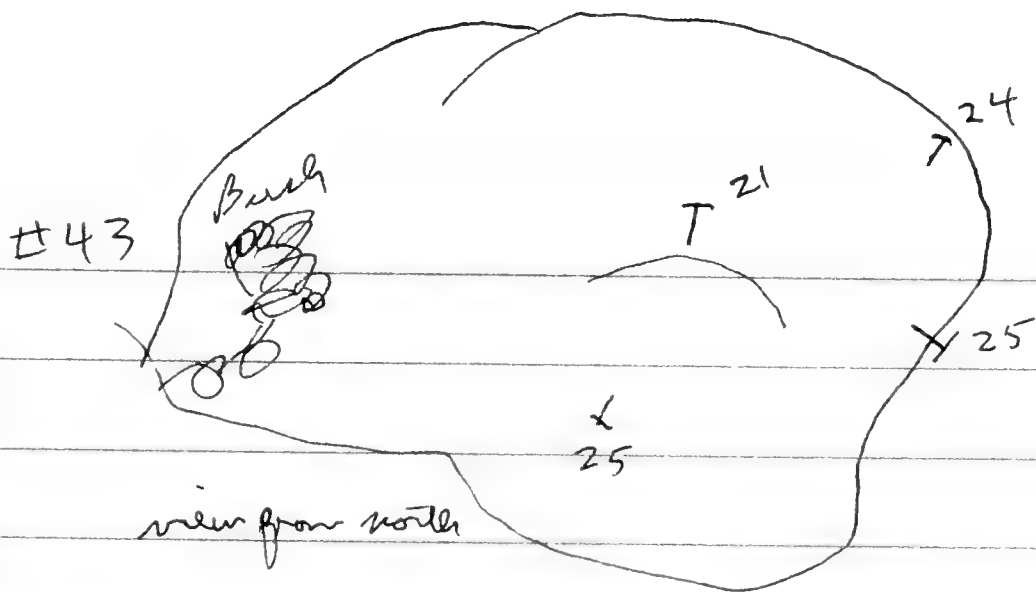
minimum 40°. Morning cloudier. No frogs or toads calling last night. Only a few Cantua blanensis, a few matthiae. Abdon berlepsi active among the Grudelia during a.m. Drove up the hill at 9:30. Stopped briefly at Quema camp, then to Yareta camp. Sunny. Vegetation just as we left it except numerous Nototricha blooming. Jibacuma multiformis & alticola both out.

Carol's yareta: at A1 bed with metal tag #10:





Pearson  
1973











but no rain, Went jacklighting for toads after dark but saw none. Set 22 small Sherman around corals + red walls at about 4 p.m., corn bait.

March 15 Night mostly clear, a.m. completely clear, minimum  $25^{\circ}$ , light frost.

max-min. readings 3/14

3/15

5:30 p.m. -  $49^{\circ}$   $92^{\circ}$

5:45 " 47

6:30 45

6:40 47

7:00 -  $45^{\circ}$   $\frac{1}{4}$  cloudy  $77^{\circ}$

7:30 -  $42^{\circ}$  (wet bulb)

7:30 -  $42^{\circ}$  ( $\frac{1}{3}$  cloudy)  $5\frac{1}{2}$

8:30 -  $38^{\circ}$   $\frac{1}{4}$  cloudy  $3\frac{1}{2}$

11:10 -  $32^{\circ}$  clear

3 a.m. -  $28^{\circ}$  - 2

5:15 -  $30^{\circ}$

minimum  $25^{\circ}$

6:05 -  $30^{\circ}$

6:25 -  $30^{\circ}$  (wet bulb  $24^{\circ}$ )

6:55 -  $33^{\circ}$  clear

7:20 -  $38^{\circ}$  clear  $3\frac{1}{2}$

8:55 -  $46^{\circ}$  clear  $8$

9:40 -  $52^{\circ}$  clear  $11$

10:20 -  $60^{\circ}$   $15^{\circ}$

11:00 -  $60^{\circ}$

11:00 - dry  $60^{\circ}$  wet bulb  $47^{\circ}$

12:05 -  $64^{\circ}$   $18^{\circ}$

12:25 -  $66^{\circ}$   $\frac{3}{4}$  cloudy

12:45 -  $66^{\circ}$   $\frac{3}{4}$  cloudy

1:10 -  $62^{\circ}$   $\frac{4}{5}$  cloud, sprinkle

1:40 -  $58^{\circ}$   $\frac{4}{5}$  " " " "

3:00 - all cloudy, dry

3:50  $44^{\circ}$  sprinkle hail.

4:40  $41^{\circ}$  " " "

5:10 -  $38^{\circ}$  rain

5:40 -  $37^{\circ}$  rain

6:20 -  $37^{\circ}$  rain

Fixed up telemeters, watched toads & lizards. ~~Saw~~ Toads were wandering out in the open at noon with warm body temps, almost all we found were small ones, about 1 to 2 inches long.

For example, at 10:25 sunny and windy:

(1) yellow-footed mini-toad at  $22.8^{\circ}$  body temp; dry bulb  $17^{\circ}$ , wet bulb  $45^{\circ}$ .

It was hopping across tuft-grass - *Pyrophyllum*.

(2) Bufo about 2", hopping out in open, Body temp.  $18.5^{\circ}$ .

(3) 1" yellow-footed mini toad  $28.0^{\circ}$  Hopping about 1 ft from hideabob rock, heading bee-line ~~for~~ rock (coral rock).

(4) 1" toad under rock.  $15.0^{\circ}$

Lizards seemed to be above ground at quite intervals.

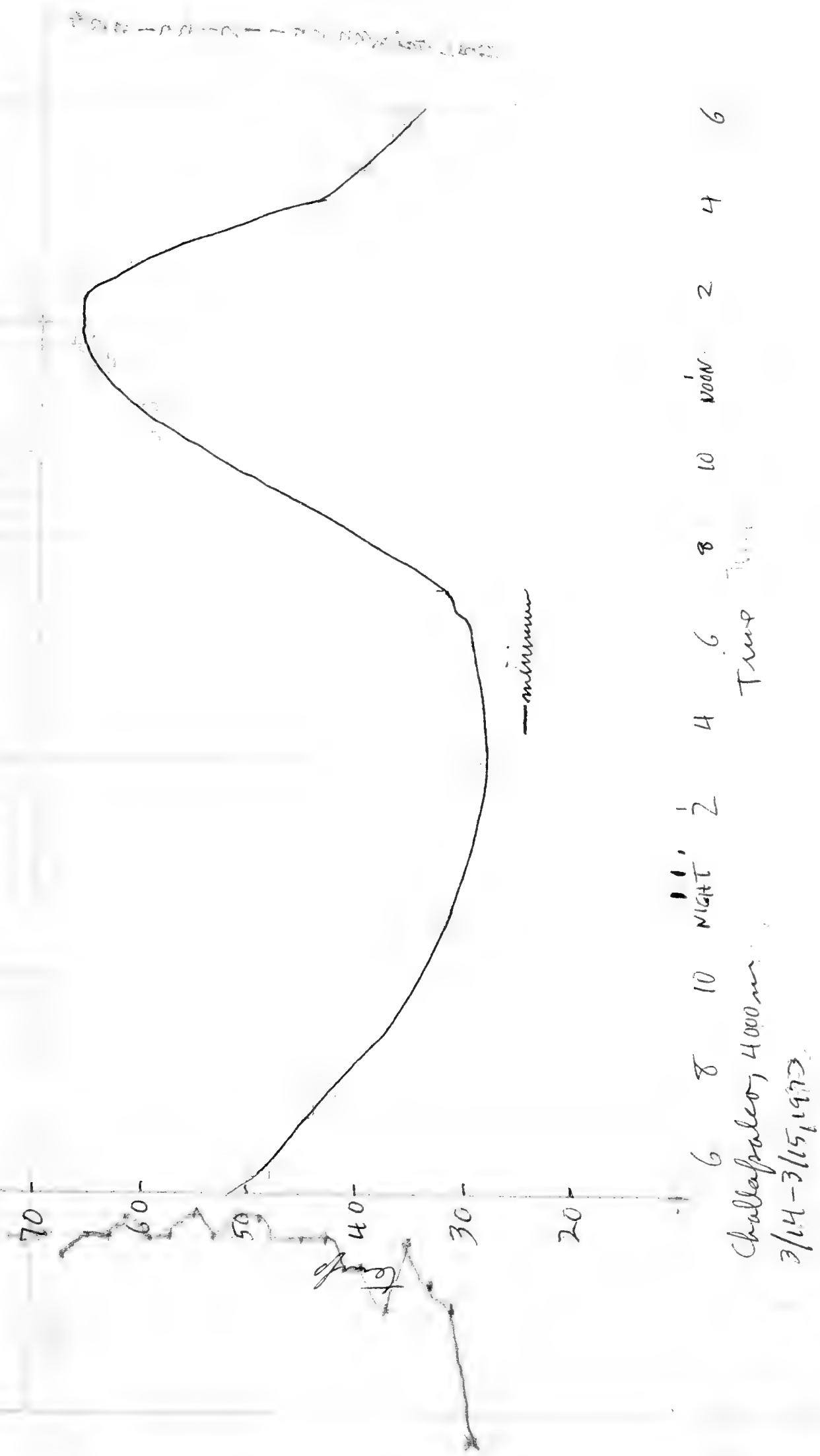
My 22 traps caught 2 *Akodon berlepschi* and 1 toad, went out after supper (almost full moon) and saw several frogs hopping cross country with air  $5^{\circ}$ , their body about  $8^{\circ}$

62

6

6

6





March 16 night overcast at first (falling rain), then mostly clear. Frost,  
plus ice on water bucket outside.

Calibration of teletherms with Schultheis; in no. of seeds for 40 chicks.

#1 -  $36.2^{\circ}$  - 8.1 sec.,  $27.3^{\circ}$  - 12.9 sec,  $17.6^{\circ}$  - 21.65 sec,  $8.6^{\circ}$  - 35.3,  $6.3^{\circ}$  - 42.1  
cut out  
at about  $5^{\circ}$ .

#2  $35.7^{\circ}$  - 14.0 sec.  $27.2^{\circ}$  - 21.5 sec  $17.4^{\circ}$  - 36.1  $8.9^{\circ}$  - 58.0  $4.6^{\circ}$  - 76.4  $0^{\circ}$  - 102.4

#3 (German)  $35.3^{\circ}$  - 7.17,  $26.9^{\circ}$  - 14.4,  $17.2^{\circ}$  - 32.75

Ran some sun - shade tests of a toad with transmitter fed by  
mouth (easy). Then put him under a big toad - boulder  
with "runways" under it and monitored him all day. He  
never came out, and so finally at 7:30 we tired of the game  
and retrieved him (and the radio). Also put a radio under a  
nearby boulder and monitored its temp. A toad watched a  
small toad come out and bask.

Brief rain about middle of day, followed by west wind  
and scattered clouds.

March 17 morning clear, Pan lizard - toad confusion. See my and  
Dave's species accounts. Basically the lizard went into  
the sun and stayed there, making only occasional forays  
into the shade to explore or try to escape + definitely not  
thermoregulating by a simple in-out movement. The toad  
floundered around, some sun, some shade, and ended up in  
the shade. afternoon windy from west, no rain, Dave  
hunted upstream and collected a toad and 2 breeding ♂ wisconsin.



Deaton



x  
Lizard-toad study area

1 mi. E Challa Palca, <sup>4,000 m</sup> ~~the site~~

↑  
burrow in *Pycnophyllum*

Photo April 10, 1974 sic.





assorted temperatures, to be placed together with others in species accounts to give more complete daily cycle: 1 mi. E. Challofalea.

3/15

7:50 - 38° thin overcast

8:50 - 32°

9:45 - 33°

3/16 → 11:35 - 34° overcast

1:00 - 28° clear

3:30 - 28° clear

4:40 - 29° clear

5:10 - 30° partly cloudy

6:00 - 28° 1/5 cloudy

minimum overnight 27°

6:50 - 32° 1/5 cloudy

7:30 - 37°

11:30 - 52° cloudy bright

12:15 - 50° rainy

12:45 - 49° 2/3 cloudy

2:05 - 53° cloudy

3:35 - 50° mostly clear

4:20 - 48° windy mostly clear

5:25 - 44° " " "

6:05 - 39° wind dropping, mostly clear  
maximum was 55

3/17

12:30 a.m. - 29° light overcast

5:30 a.m. - 24° clear, frost - 42  
minimum was 22°

6:40 27-29 (two sides of mop - mid) clear

7:10 29-31 clear

7:30 clear

8:00 AM 34-36 clear

8:30 40-40 clear

9:00 44-46 " very little wind

9:30 48-48 " " "

10:00 47-46 clear

10:30 48-48 " "

11:10 52-51 1/2 cloudy

12:00 54-54 4/5 cloudy

12:40 57-59 " " 1/2

1:00 57-57 " " 1/2

1:50 58 3/4 clouds 1/2

2:00 54-55 " " 1/2

2:30 53-54 " " 1/2

3:00 52-53 " " 1/2

3:30 50-52 " " 1/2

4:00 48-50 " " 1/2

→ 4:50 - 45° 7° windy, all clouded.

5:30 - 42 1/2 " " "

6:10 - 42 some wind, 4/5 cloudy

7:00 - 40-42 5 all cloudy

8:00 - 39-41 1/2 cloudy

8:30 - 40-41 " "

mop for day 60°

3/18 1:30 - 30-34 cloudy

5:20 - 30° all cloudy, no frost,

6:47 AM 32° but light ice on bucket.  
1/2 clear

minimum 24

10:50 54° 1/2

9:00 am 52-54

10:10

1:35 - 59° mostly cloudy

1:55 - 56° windy

2:30 - 58° windy

4:20 - 48° double windy

5:15 - 47°

5:50 44° cloudy, some wind. 6 1/2

8:00 - 35° slightly overcast

2:45 - 37° cloudy

3/19 AM

4:00 - 34° cloudy calm

4:10 - 37° dry bulb, 37° wet bulb  
no wind.

5:30 - 33° cloudy no wind  
no dew no ice

6:15 - 35° 3/4 cloudy calm

6:55 - 37° all cloudy 3°

7:50 - 43° cloudy 6°

8:00 - 43-44 " "

8:10 - 44 " 6 1/2

8:30 - 47° " "

8:55 - 50 " "

9:25 - 52° " "

see lizard note

10:43 - wet-dry 56-46°

11:00 - 52°

11:40 - 50-52 sprinkles  
cloudy



3/19 PM

12:40 64° sunny  
1:15 57° overcast  
1:25 54 hail-sprinkles  
1:35 41½° cloudy  
1:50 48° wind shifted to west  
3:55 44-46 cloudy, has been drizzling  
4:15 43-45° "  
6:00 40-42½ rain  
7:30 36-39° "  
~~8:30~~  
10:30 33° snowing lightly, mist,  
½ inch snow on ground

3/20

4:00 33° overcast  
5:55 3° cloudy  
6:35 3½° cloudy  
6:30 34-36  
7:00 36  
7:50 39° cold east wind, cloudy  
8:00 40° " " " "  
8:22 43° " " " "  
Last minimum 36°  
8:45 46° " " " "  
9:25 46° " " " "  
10:20 55° cloudy, patches of sun, little wind.  
11:30 58° sunny but a cold wind from S, many clouds.  
12:00 57° " " " "  
1:25 48° cloudy, off and on rain  
5:55 57° cloudy

3/21

6:30 am 25-27° Clear. sun just struck camp.



in corral 2 x 3 ft. with sun  
and shade available

March 17

TA 8.0

TA 9.8

8:38	TA 4.5° 2.9°		5.8°	
8:44	11.9°	Tool (transmitter #2)	Lizard (Transmitter no. 1)	
8:49	1/2 sun, dropping in		sun	23.8°
8:50	full sun		sun	
8:51	into shade and dropping in 8.9°		sun	fully active
8:52	shade		sun	27.9°
8:53	1/2 shade		sun	
8:53 1/2	sun 8.6°		sun	
8:54 1/2	into shade 9.3°		sun	28.7°
8:57	into sun		wandering sun & shade.	
	Dave got roosting on tool - 10.5°		then sun	29.7°, 30°
9:00	1/2 sun		sun	32.6°
9:00 1/2	into sun		into shade	
9:01 1/2	1/2 sun, then shade		sun	32.6°
9:03	shade 14.5°		sun	
9:03	sun		sun	
9:04	4 1/2 1/2 sun 14.6°		sun	
9:04	3/4 shade		sun	
9:06	shade		sun & shade	31.2°, 30.9°, 30.6°
9:08	into sun 13°		sun	29.0°
9:09	sun		sun	28.3°
9:10	TA 8.1° sun		sun	Dave roosting
9:12	entered shade. Reading 15.9°		mostly sun & explores	
9:13	into sun again 15.9° 16.3°		sun	28.2°, 27.7°, 27.2°
9:14 1/2	sun still		sun	
9:14:45	into shade tool		sun	
9:20	not dry 48° - 40° 14.6° - 16.3°			28.8°, 29.0°
	tool was reading,		lizard mostly sun	
9:20 1/2	shade 15.2°		exploring	
9:22	into sun 22.1°		sun	28.5°, 28.0°
9:23	into shade		still sun	
9:25	still shade 10.7°		"	
9:26 1/2	" " 10.3°		"	
9:28	into sun		still sun	27.9°
9:29	into 1/2 shade then sun, sun		sun	
9:30	sun 12.8°		sun	
9:31	into 1/2 shade 14.2°		sun	
9:33	moves to 3/4 shade 15.8°		still sun	
9:34	still 3/4 shade		"	Dave roosting 28.8°
9:35	tool into full shade 14.4°		sun	
not back 40° dry 53°	9:37 11.6°		9:38	29.6° - 31.2°
			mostly sun but some	
9:41 1/2	all shade 9.3°, 8.8°, 8.2°		exploring in shade.	
stay with a few whirly clucks			sun	
9:44	still shade		full sun	31.6°, 32.4°
9:45	" " 7.1°, 6.9°		"	
9:46 1/2	" " Dave left tool		sun	Dave Roosting 32.6°
9:49	" " "		sun	33.4°, 33.0°
9:50	" " 5.9°		sun	32.6°
TA 12.2°	still in shade 0.4°			



Food

Injured

9:52 still shade (bare new reading) 5.8°

9:55 " " 5.5°  
soil surface 0.2 rise!

9:59 " " 5.4°

10:01 1/2 " " "

TA 13.7° wet soil in shade 0.6 to 2.6°

10:07 still shade 5.3°

10:09 " " "

10:15 " " 5.6°

10:16 " " "

TA 17.0

10:19 1/2 5.8° soil shade 4.6°

10:21 1/2 5.8° soil in sun 2.4°

10:24

dry bulb 56° wet bulb 44°

10:27 - 6.3°

10:30 food weighs 18.1 g

sun

"

"

"

"

"

escaped  
+ recaptured

sun

moving!

1/2 in sun,

then full sun

31.7°

auto shade

for 20 sec

31.8°

32.0°

escaped + killed while being

recaptured,

basically the lizard

stays in the sun, then

runs into the shade

careless for maybe 10 sec

to try to escape, not

deliberately thermoregulating

28.2°, 28.5°

32.6,

31.7

31.8° 32.0°

good full sun in above observations.





he went in, (8:30) his rectal temp. was  $4.0^{\circ}$ , air 2" above ground  $7.5^{\circ}$ , soil surface  $8.2^{\circ}$ , a nearby *Festuca* clump  $6^{\circ}$ . During the 50-minute observation period, there was little or no wind, it was cloudy,  $6\frac{1}{2}^{\circ}$  ambient temp, soil surface (near board)  $5^{\circ}$ , dry bulb - wet bulb  $35^{\circ}$ - $43^{\circ}$ . Dry enough so that in spite of cloud could striking a wool scarf elicited static sparks.

March 18

Complete overcast at 5:30 a.m., skin of ice on bucket. Birds are very scarce at this camp. The only common ones are miners. Occasionally an *asthenes* or some *merulops*. a few flocks of parakeets fly up the stream (or down), yesterday chased by a falcon (unsuccessful). We hear seed sniffs and *Tinamotis*, have seen only one pair of doves, no butors or condors. We occasionally see *Bolomys berlepschi*, and *Ctenomys* is present but unobtrusive. To the bird list add a little grey finch and along the stream *Cinclus*.

*Lepidophyllum rigidum*? is the most abundant, and neither it nor *L. quadrangulatum* is in bloom. *Festuca* slightly more abundant than *Lepidophyllum*.

Ants saw one *Lichasium alticola* two days ago

During morning ran a sun-shade comparison of ~~lizards~~ lizards - lizard. Drove 10 minutes up the road to Capazo and saw a trio of *Tinamotis* and collected 2 guinea pigs for skeletons. The guinea pigs were grazing on green turf (about 6 of them) a few feet from a road wall, together with at least 5 *amblyomys boliviensis*.

March 19

Calibration of telemeter # 4:  $14.0^{\circ}$  <sup>14d</sup> and  $14.1$  and  $14.1$  for 40 counts at  $9.1^{\circ}$  C. /  $9.5$ ,  $9.7$ ,  $9.7$ ,  $9.6$ ,  $9.7$  temp.  $15.9^{\circ}$  /  $7.6$ ,  $7.5$ ,  $7.6$ ,  $7.6$  temp.  $20.3^{\circ}$  /  $5.9$ ,  $5.9$ ,  $5.9$ ,  $6.0$  temp.  $25.0^{\circ}$ .

Put telemeter # 4 under our standard rock at 4:20 following a cloudy rainy afternoon, 40 clicks <sup>12.0</sup> 11.7 sec at 4:27.



ambient 7.9° 5:40 PM 12.2 mm/40 dials, 8:30 13.5/40, 10:30  
 14.9/40 dials, 4:00 AM 3/20 17.5/40, 5:55 17.7/40, 7:10 18.1/40, 7:55 18.1/40, 8:25 18.0/40, 9:00-17.7, 9:45-17.5, 1:52-13.3, 2:10 raining, 11.6/40, 2:56-raining 12.0/40, 4:46 raining, 13.5/40

3/20

yesterday afternoon became raining, and on into the evening. At 10:30 PM there was a 1/2 inch of snow on everything, but more rain in the night removed all of it. Morning completely overcast, cool east wind. Moused lizard and reimplanted telemeter. Rest of day (until cold rain etc.) watching him.

Temperatures etc.	Rock	Lizard	ambient
7:05	14.1/14.1°	27.5/27.5°	4.2
7:26	14.4/40 dials	28.0/28.0°	5.2 overcast
9:00	15.0/15.0°	28.3/28.3°	4.8
9:30	15.7/15.7°	29.0/29.0°	38° thin overcast
11:35	16.5/16.5°	29.7/29.7°	36° 1/3 clear

3/21

1:40 AM	17.4/17.4°	31.0/31.0°	32° 2/3 clear, frost
3:30	18.0/18.0°	31.5/31.5°	30 all clear
5:30	19.4/19.4°	33.0/33.0°	27-29 all clear
6:05	19.7/19.7°	33.2/33.2°	28° minimum 27° all clear
6:30		33.6/33.6°	clear
6:45		33.5/33.5°	"
6:50	19.7/19.7°		

3/22

12:15 AM	17.5/17.5°	38.2/38.2°	33° clear calm
3:20	19.1/19.1°	39.0/39.0°	30° " "
5:40	20.2/20.2°	39.4/39.4°	28° " " (minimum)

frost, ice, some hail remaining in lee of Festuca on dead Festuca culms such as the lizard basking pool.

6:20	20.6/20.6°	39.3/39.3°	29° still frost
6:26	sun arrives		
6:56		40.0/40.0°	







Scorched for Toads & lizards at the seep in a 88 drizzle. Found one huge lizard under a flat rock together with a medium toad-frog, plus a tiny toad of a species other than the yellow-foot kind, and one other medium toad-frog.

aunts put out 25 small Shermans and I put out 22 large Shermans. Evening calm and clear.

March 25 13 hrs NE Tarata. Numerous trucks during night. One stopped and fired a shot. My traps caught one Phyllotis darwini and aunts caught 3 Abodon ardum and 4 Phyllotis. Minimum temp overnight 27°. Morning clear, calm. Lots of Tinamotis calling. Dave shot one. He also saw hummer in the cave, looked like it was feeding young. Light rain in afternoon. Evening calm, partly overcast, then scattered clouds, then clear. Very young nursing viscacha.

March 26 minimum about 32°. Frost. Numerous thin clouds. During the night when the truck convoy went through, heard a shot. Ditto night before last.

Went down to the seep at 6:45 a.m. to temperature-integrate a lizard. Found a big one, implanted an integrator, then watched him through a cold windy morning. He finally submerged in a hail-rain sprinkle.

Dave checked the hummer nest and it contains 1 young. Evening cloudy. Dave left on a truck about midnight.

March 27 morning quite cloudy. For minium seelizard wts. Packed up and went down to the seep to look for our temp-integrated lizard. Found him just about as he was emerging,  $\pm \frac{1}{2}^{\circ}$ . Noised some more Lobos for al Bennett, then drove down the hill to





acquia Camp (11,500') for rest and relaxation, a few Quercus trees were in bloom with long pendulous flowering stalks. as you come down the Quercus gives out just about where the columnar cactus begins.

At acquia Camp (mountain scrub) things are quite green and lots of things flowering (but only a few Cactus flowers). Saw rattlesnakes working on them, and saw 2 *Phrynosoma* squabbling. Zonotrichia singing, thrushes, doves, etc. a few big Cereus blooms. Have the impression of greener and more flowers than 2 weeks ago. Much of the greenness is not from ground cover but from new growth on the bushes (plus *Brudelia*). The growth on the bushes will probably be caused by goats etc. At ~~our~~ or near our campsite were sheep, burrows, corn, & larvae.

March 28

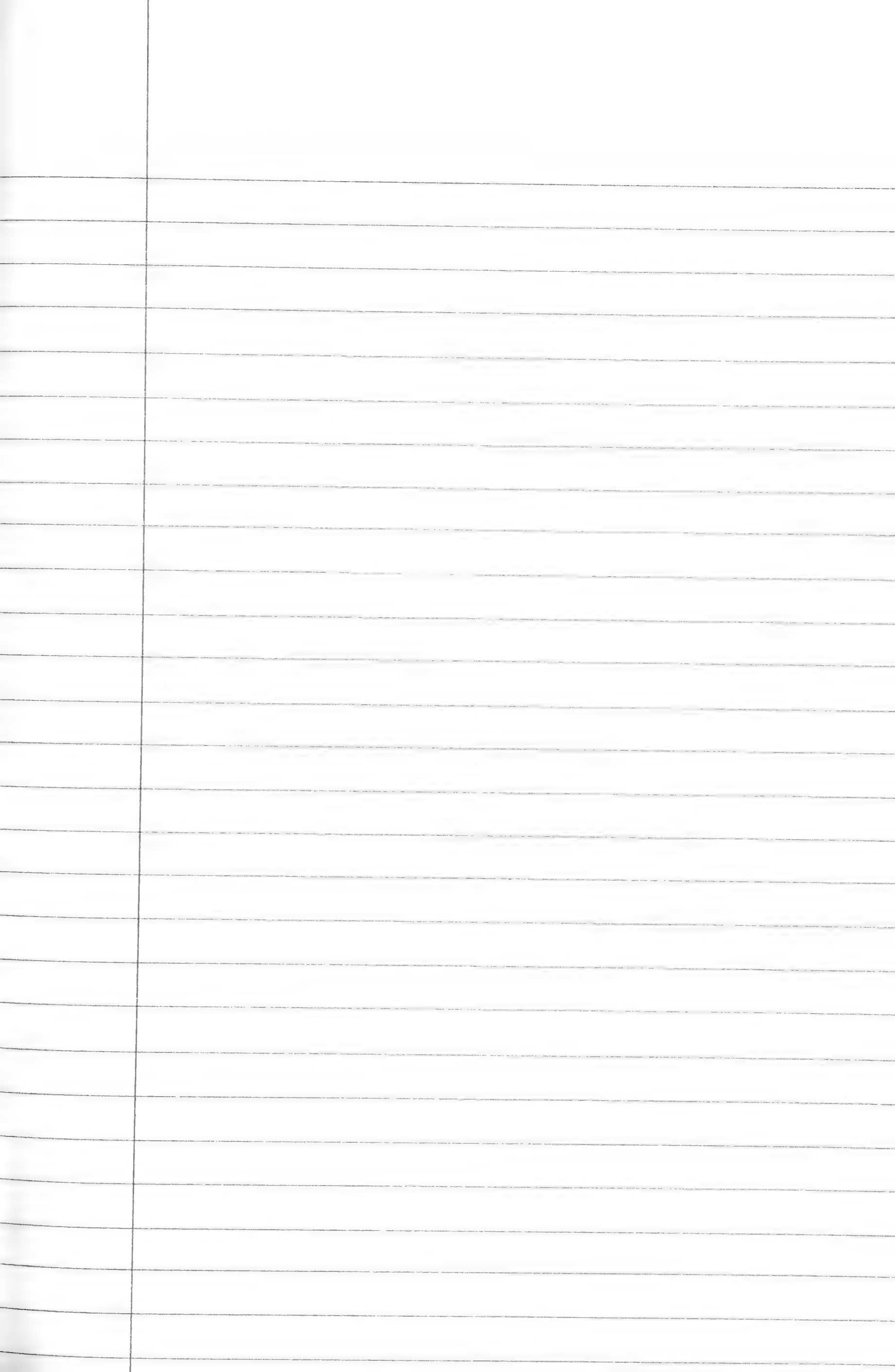
Heavy dew. Left about 8:30 for Tarata. Visited + stopped there, then drove to the Tillandsia camp NE of Tacna. Vegetation same. Saw nightjar on the study area, on ground, at dusk, and heard some bird circling + calling overhead but couldn't see it.

March 29

Dew on car overnight (clear). Heard seed snipe at dawn. Saw lizard tracks on study area. The barrow is about 1 m deep and is about 30 yds from the inland edge of the grid. Big Tillandsia are 16" tall. To Tacna about noon.

\*





$$\begin{array}{r}
 319 \\
 \times 4 \\
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 76
 \end{array}$$

$$\begin{array}{r}
 319 \\
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$$\begin{array}{r}
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 319.3 \\
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 772
 \end{array}$$

# Species accounts

## Toads

March 15 (see some notes under March 15.), at 3 PM went out again (cloudy drizzly), found a 1" toad under a small stone 20° BT.

3:10 " " " " " med. stone 19°, air 9°, drizzle

3:20 a 1½" toad under large stone 18.5°

3:22 2" toad walking around in 8° ambient hood

body temp of 19½°.

Went out after supper (almost full moon)

and saw:

7:03 scattered clouds following rain, air 4°, ground 7°, toad 6°, wet dry 38-40°

7:15 1" toad moving across country, air 3°, encountered a big toad, both entered a Festuca clump, body temp in Festuca 6° (in ground in the clump. moth flying

7:30 1½" frog with leopard spots & shiny skin 8½°, walking across country, air 4°.

March 16

Large toad with teleostei #2 swallowed, in screening

cage: 7:30 shade, no wind.

(4.6°) 19.3 - 10 chicks - 4.1° ambient

(4.0) 20.0 - " (4½) 40° dry bulb

(4.0) 19.8 - " (3½) wet bulb 38°

7:55 " "

(5) dry 41, wet 40 (4½)

8:10

(5.0) 19.0 - (6½) 44 " (4½)

moved into sun at 8:10, at 8:16 →

(6.7) 16.3 - "

" " 8:27

(10.8) 13.0 - " (8½) 47° wet (6½) 44°

8:32 - some clouds.

8:42 - " "

(13.2) 11.5 - (9½) 49° wet (7) 45°

back into shade at 8:47

cloudy bright 9:03 in shade

(8°) 14.8 (10) 50° wet (7) 45°

" " 9:18 " "

(6.7) 16.4 " (6) 43°

" " 9:33 " "

(7.0) 16.0 (11) 52: (7) 45°

sunny

9:54 " "

(7.3) 15.8 dry 53 (11½)



9:54 moved him back into bright sun. all of these with swing thermometer.

10:02 bright sun, light breeze (12.3°) 12.2 sec/10 clicks dry 52° wet 45° (7)

10:12 " " " " (12.7) 11.7

10:30 " " a few scattered clouds interval (14.7) 10.6 (13) 62 (13) 43 1/2

10:53 " " light breeze no clouds interval (15°) 10.3 (13) 55 (13) 46 1/2

moved to shade and watered. above measurements were made in a fly-screen cylinder 1 foot long, 4" diameter. 21 gauge. 60m S-V.

at 2:15 pm put this morning's toad under a big rock, windy, sky 1/2 cloudy. His temp when we put him under rock 13.7 sec/10. (9.7°)

2:22 - 13.3 sec/10 clicks. (10.5°) 2:45 - 13.1 (10.7°) Chargin' signal strength

2:26 - 13.4 " (10.3°) 2:57 - 12.9 (10.9°) indicate that he is moving

2:34 - 13.3 " (10.5°) 3:10 - 13.0 (10.8°) around under the rock, which had + sloped runways.

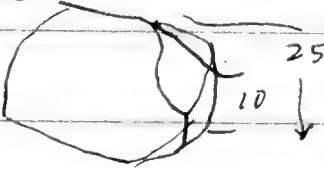
3:57 - 12.55 (11.3°) sec windy, mostly clear

4:25 - 12.6 (11.3°) " " " "

5:06 - 12.0 (12.2°) " " " "

telemeter #1 [toad]

put a toad under a rock close to 2 other [lizard] rocks and

45 cm x 40 x 25  began recording in p.m. see Dave for first reading. This rock weighs about half the one with the toad. Telemeter #2 in time of the two rocks are 6 feet apart

rock	ambient	sec/10 clicks	temp
4:45	6.7	11.4	8.4° Schultze's
5:20	6.5	13.6	8.0
5:52	6.55	13.7	6.0
6:20	6.6	12.5	5.0
7:08	7.1	12.6	5.0
7:35	7.0	12.6	4.2

see Dave's

5:35 - 5:40 - 57.5 - 60.0 for 40 counts climbing steadily

6:05 - egg measurement at 80 sec for 20 counts

6:05 - 2.0 on Schultze's inbrear

6:15 - in vol under rock 4.2





Continuation of toad under rock with telimeter # 2

Time reads / 10 dals

5:19 PM 11.9  $\times 4 = 476 = 11.7^\circ$

5:50 11.9 11.7°

6:16 11.6  $\times 4 = 464 = 12.8$

see Dave

~~12.8~~

7:05 11.6 12.8

7:33 12.0 12.2

recaptured toad from under rock (he stayed under rock whole time)

Calibration of thermocouples  $9.0 - 16.5 = -7.5 = 5.2^\circ$

yellow sent forward,  
volt scale 3

$23.0 - 14.0 = 9.0 = 15^\circ$

$54 - 24 = 30 = 31^\circ$

$51 - 31 = 20 = 25^\circ$

more careful calibration as above,

$6.0 - 14.0 = 0.4^\circ = -8.0$

$21.5 - 20.0 = 5.2^\circ = +1.5$

$44.7 - 25.0 = 18.1^\circ = +19.7$

$38.0 - \overset{29.5}{\del{28.0}} = 11.0 = +8.5$

scale 15  $15.8 - 6.5 = \overset{37.9}{\del{38.0}} = 9.3$

scale 15  $14.0 - 7.0 = 30.6 = 7.0$

"  $12.0 - 7.5 = 23.3 = 4.5$

scale 3  $52.5 - 40.0 = 15.7 = 12.5$  doesn't fit

scale 15  $20.0 - \del{38.8} = 43.6 = 11.2$

" "  $23.3 - 9.0 = 49.4 = 14.3$

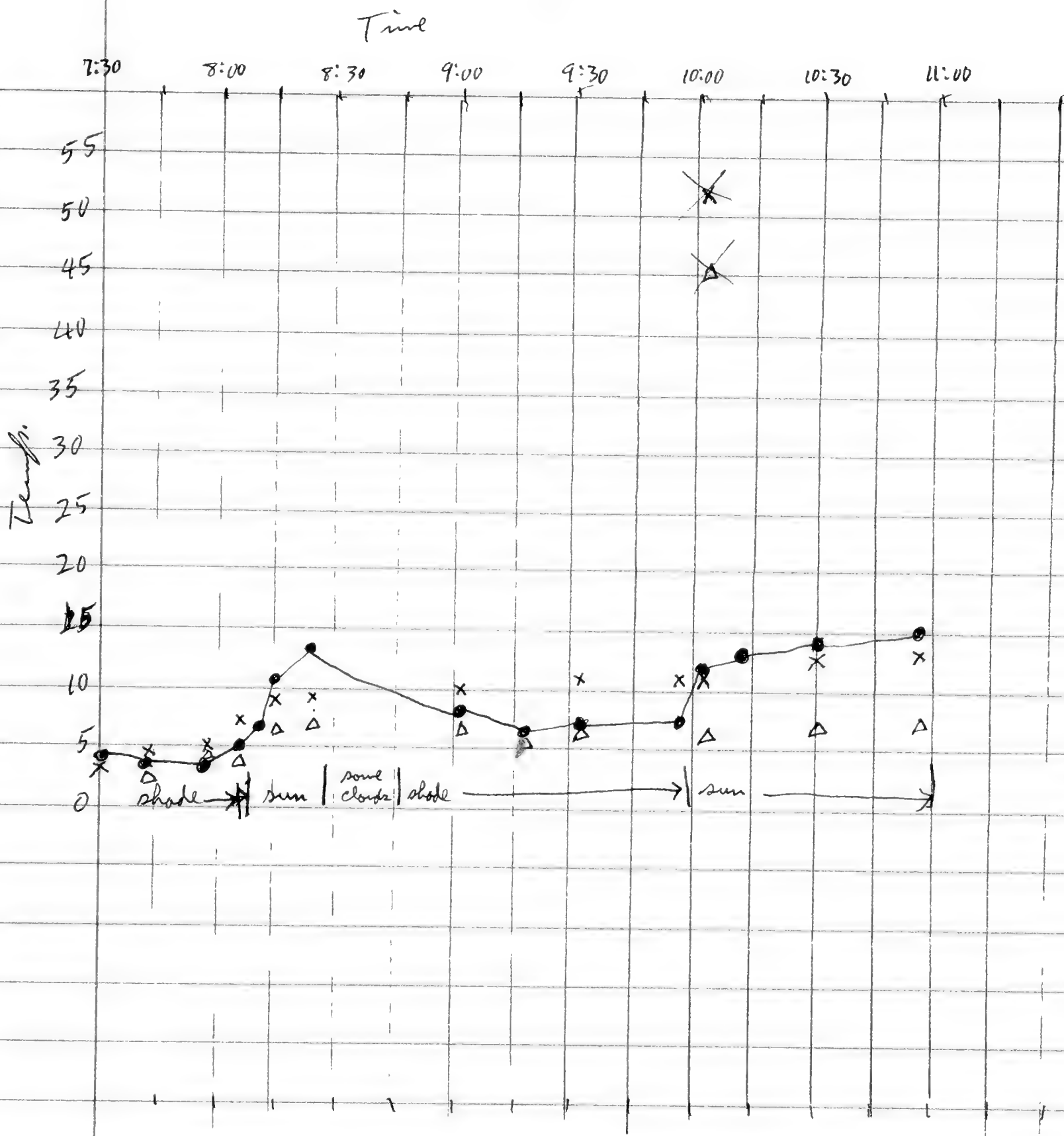
$46.0 - 40.5 = 13.3^\circ = 5.5$

$47.3 - 42.0 = 13.2^\circ =$

use this calibration for  
all measurements  
until 7 a.m. on March 18.



• = Toad  
 x = dry bulb  
 Δ = wet bulb



March 17 med. toad walking around in Festuca at 4:44<sup>PM</sup>, cloudy, windy,  
 wet bulb 38°. Toad snuggled under a Festuca clump and sat  
 still, at 4:59 his temp. was  $13-12$   <sup>$6^{\circ}$</sup>  3v. 5 inst-Vent #2.  
 Dry bulb 46°. Temp. on <sup>under Festuca</sup> ground  $19-16$   <sup>$7\frac{1}{2}^{\circ}$</sup>  moved to another clump out  
 feet away. 5:22 =  $12\frac{1}{2}$  - 15 rect temp; in his clump  $8\frac{1}{2}^{\circ}$ .

at ~~7:40~~ 7:40 Toad encountered a medium toad near the tent,  
 huddled along a board of our testing arena. It moved + huddled along  
 this  $2\frac{1}{2}$  foot board for about a half hour, then walked ~~20~~ <sup>10</sup> feet  
 away and finally headed into a Festuca clump. just before



PM  
he went in (8:30) his rectal temp was  $4.0^{\circ}$ , air 2" above ground  $7.5^{\circ}$ , soil surface  $8.2^{\circ}$ , a nearby Testes clump  $6^{\circ}$ . During the 50-minute observation period, there was little or no wind, it was cloudy,  $6\frac{1}{2}^{\circ}$  ambient temp., soil surface (war board)  $5^{\circ}$ , dry bulb - wet bulb  $43^{\circ}-35^{\circ}$ ; dry enough so that in spite of cloud cover, stroking a wool scarf elicited static sparks.

March 18 Compared temps of Toad & lizard in sun and shade (see data) (Brookfield & Smith)  
at 11:00, saw a finger-nail sized toad crossing the road, walking and hopping, air warm but overcast. at 10:30 wet-bulb dry-bulb was  $44^{\circ}-57^{\circ}$ . He covered about 10 feet in a few (3?) minutes and ended up in a Testes clump.

at about 4:30 pm walked around looking for toads, saw none. I was not lifting stones, however.

March 19 night was so "warm" and humid and still that I walked around for about 20 minutes at 4:10 am (wet bulb - dry bulb both  $37^{\circ}$ ) looking for Toads with flashlight. Saw none.

at 9:10 looked under the big flowered toad rock NE of camp; big toad was at home, his temp.  $7.9^{\circ}$ .



# Toad and Salamanders

1 mile east of Chalapa, 4000m

Time	Small toad	Large legless	Tabulated #2 Toad.	
			25.4	14.1
8:50	6.9 g	♂ 8.8 g		
March 18 Tethered in Sun				
8:48	Temp 14.8°	11.0°		10 chads (4:52)
ambient 16.5°	8:53	17.2	20.2°	11.7
	8:56	17.6	24.0	12.5°
	8:59	19.4	26.6	
met bulb 48° dry bulb 50°	9:02	19.8	27.4	
	light clouds			
	light clouds 9:06	17.2	25.2	
ambient 14	light clouds 9:11	17.0	24.2	
soil 21.5°	light clouds 9:16	18.6	26.4	
9:12 full sun				
9:14 light cloud				
9:18 full very light breeze from east.	full sun 9:21	20.2	29.2	
	soil 25.0° 9:25	22.0	30.4	
	full sun 9:30	20.8	32.0	
soil 32	a few cloudy moments			
	full sun 9:35	21.2	34.5	
	9:42	21.5	34.2	
dry bulb 58°	9:47	22.0	34.6	
met " 43°	into shade 9:49			
soil 31°	in " 9:51	18.4	30.7	
still sunny	" 9:53	16.2	29.0	
	" 9:56	16.8	26.2	
cloudy	" 9:59	15.6	23.3	
ambient 17°				
soil 24.2	11.5			
west wind begins	ambient 11.5	10:05	12.4	20.5
soil 16.2	ambient 14.8	10:09	13.0	19.5
	10:14	12.5	19.6	
	10:19	12.9	18.5	
	ambient 16°	10:24	13.4	19.4
met bulb 44°				
dry bulb 52°	10:30	13.4	20.5	
	10:35	15.0	22.9 g	
		weighed 5.0 g		
		weighed 8.5 g		





Tord ad ~~Scolopendromus~~ Scolopendromus

12:05 still in shade, cloudy bright. T rectum  $13.5^{\circ}$ ,  $4.2g$ , somewhat  
dried and moulting, but cold to touch. Fecal body temp  $19.0^{\circ}$ ; body  
weight 8.5. Soil  $18^{\circ}$ , shade temp  $17^{\circ}$ .

Although the sky was completely clear at the start of the  
above experiment, wispy clouds kept forming near the sun  
and reducing intensity of light. Towards the end, a capricious  
colder breeze from the west also introduced variations.

~~Scolopendromus~~  
march 18 Scolop adult ♂ at Pyrocephalus with 3 stones:  
afternoon windy,  $\frac{1}{2}$  clouds, see other weather data. He had been 6"  
outside his hole for at least a half-hour before observations  
began at 2:30. 2:38 air  $13^{\circ}$ , <sup>lying</sup> ~~located~~ on bare ground inside of  
Pyrocephalus ring, one side up against the pyrocephalus.  
2:30-2:52 windy almost not sun. 2:53 air  $13^{\circ}$ . Head movements on  
two or three occasions only, up of head to 2:59, darker chilly in  
woolies, wool short, and in car (with open window, 3:15- $12.2^{\circ}$ ,  
still no movement, no sun, strong wind, 3:30 has been some slightly  
fitter sunshine, still windy,  $13^{\circ}$ . 3:39 walked 6" down into  
his burrow, possibly because ants walked nearby. air  
temp  $12^{\circ}$ , windy, cloudy. ants saw none as she walked  
through her area, but the "tagged tola" lived beyond this  
one is still out. 3:15 Pyrocephalus male with head out  
of his burrow. 3:47 more down hole. air 11, windy.

march 20 9:59 - 1" brown toad in other snuggling into depression, cloudy -  
bright. 10:00 walks vigorously 2 ft., then stops. 10:02 walked  
into base of tea bush. Soil temp  $15^{\circ}$ , air temp  $10^{\circ}$ .



# Toad and Frodo

10:05 Toad <sup>with yellow feet</sup> at Pyro. 10:15 20.5° body temp. after almost steady journey of 20 yds. 1" toad black with yellow feet cloudy, sun came out during his journey. All this by breeze, wet bulb 44°, sea surface temp. of a few minutes earlier.

3/22 10:36 Tiny black toad with yellow feet heading north (they all do!).  
Sun bright, wind. Hops and walks frantically, a few cloudy  
~~penetrating light rays~~  
10:45 more clouds  
10:46 Still a few snow patches in Festuca  
10:52 Stopped and dug himself partly into soil looking into hind feet.  
10:55 Snuggled into his shallow scoop out, not wet.  
10:56 Full sun for at least 2 min. Then oral temp. 28.5°C.  
shade temp 54°. Schnitzler ~~not~~ with cheese tooth (met) 10.5°C.  
He travelled 33 yds. in the 16 min before he dug himself in.  
His S-V length 19 mm.

10:22 Teller's heard notes to be added to similar:

9:44 8:30 still ~~no~~ snow patches  
10:46 still a few snow patches  
11:32 has been on Festuca for ± 10 min.  
11:40 sunny, clouds all around but not here. Breeze from west.  
11:44 hot.  
11:47 under tola  
12:00 9 minutes basking on rock. Scared him trying to get his temp.,  
then he went to another rock and basked  
12:15 still basking on this other rock 16.2/40 = 32.7°  
12:23 " " " " " "  
12:24 left rock. Thunder, clouds, no wind.  
12:26 W. sprinkle. 17.8/40 = 30.8°  
cool breeze from west, mostly cloudy.  
12:37 Herded him down hole 24.4/40 = 24.6°  
but he didn't like this hole and with a little herding headed  
back for his Pyro burrow of night before last.



*Ptychocheilus* ♂ with transmitter #2  
 stuff tail. 84m SV, 18g.

March 20

10:55

Operate and release 10:55. Tried to come back up,

11:15

plugged up hole with banking until 11:15 <sup>15.5</sup> 18.7 sec/20 clicks  
 air 58.  $\frac{2}{3}$  cloudy

11:19

18.9 sec/20 = 16.6°

11:19 $\frac{1}{2}$

Went deeper in burrow? At least didn't stop

11:18

out of back door? at 5 ft away to table beyond hole.

11:28

at base of table beyond hole,  $\frac{1}{2}$  cloudy.

11:37

Presumably still under table.

11:45

Has been continual sun, butterflies and flies.

11:53

Continual sun.

11:55

He in full sun about 4 ft beyond table.

11:59

Into partial shade of table, possibly eating. But he doesn't full sun.

12:07

Still full sun. at 1/2 vegetation.

12:15

Still sun, breeze from east. His location seems to be about 10 ft from fence.

12:23

Still taking full sun.

12:25

Cloud.

12:27

Embarked on a 10-minute territorial expansion past top of table  
 and to a table - inch deep near road in line with road to pens.

12:55

Still same place. ~~to~~ Cloudy since about 12:27.

12:58

near car (across road). Cloudy. Off and on digging for about 5 minutes

1:05

near car. Cloudy. Dave returned.

1:09

Dug other *Ptychocheilus* burrow.

1:09 $\frac{1}{2}$

32.4 sec for 40 clicks = 19.4°C = ~~15.7~~

1:16

19.7 sec for 20 clicks. wind from W. Cloudy. Thunder = 15.7°

1:24

21.8 13.9° ~~11.7~~ air 10.4°

1:28

23.1/20 12.9°

1:29

had air 8.6°, 1:31 23.6/20 1:34 24.2/20 1:37 air 6.2°

1:38 24.7/20 1:43 air 5.7 drizzle 1:44 25.1/20 1:50 25.6/20



OPP  
1973

Yareta Camp - Yareta

March 20

10.7

2:05 26 sec/20 clicks rain-hail

2:32 41° raining <sup>10.7</sup> 26.0/20 clicks 2:52-dry <sup>11.9</sup> 25.8/20 sec

4:46 PM Windy rainy with hail-dry 40-41° <sup>10.1</sup> 27.0/20 clicks

3/24

9:15 AM. Went to big rock near camp near which we had measured "Rock temps" and under which we had ~~always~~ found a big toad. Rolled it - empty. 5 yds away at the floured rock ~~with~~ (flat) were two big toads: 7.8° and 8.2°. (This rock had reliably held a toad)

Excavated the *Dipsosaurus* burrow #2, used by our *Telenotia* lizard on his 1<sup>st</sup> and 3<sup>rd</sup> nights. The side branch used by him was a blind pocket about 4" deep. Slight pressure in the other direction broke into a large Texas burrow (containing a medium toad). See journal 3/23 for burrow no. 1.

Toad 7.8 g., Lizard 7.0 g. into wire cages in shade at Yareta Camp 2:04 Breeze from west. In shade of ~~car~~ <sup>scattered clouds</sup>.  
2:10 wet bulb 48° <sup>9°</sup> dry 56° <sup>13½°</sup> 2:28 lizard 18.0, toad 11.4°

2:31 " " 49° " 55° <sup>13°</sup>

<sup>9½</sup>  
Went toading 4 PM in cold drizzle & seep near Yareta Camp. Under one med-sized flat rock was a huge lizard 16.5° and a medium toad 15.0°. Nearby under another stone was a medium toad 12.5°

3/25

same toad & lizard as yesterday into wire cages @ 10:55 a.m. sunny, breeze from east. Toad 7.0 g., lizard 7.0 g. 11:00 wet bulb 45° <sup>27°</sup> dry 58° <sup>14½°</sup> 11:19 cloud to 11:22; cloud 11:23-11:25. 11:33 wet bulb 46° <sup>8°</sup> dry 60° <sup>15°</sup> 11:35 toad 14.8°, 6.2 g., lizard 24.4°, 6.9 g. sunny with breeze.





Yarto camp, 13 km NE Tarata

March 26

Hatched lizard integrator and black body integrator (resting)  
at 6:30 a.m., temp.  $34^{\circ}$ ; they went down to the big reef to  
look for a big Solomon. Hunted long where I had seen 6  
big ones yesterday and eventually found one near the big boulder close  
to the road. He was under a smallish 1-foot round boulder.  
Inserted integrator at 7:35 and returned him to under the  
rock. Under-rock temperature  $4^{\circ}$ .

7:55 - Emerged  $\frac{1}{2}$  way and is  $\frac{1}{2}$  in weak sun. Shade temp  $42^{\circ}$ .

8:03 -  $\frac{2}{3}$  in sun.

8:05 -  $\frac{3}{4}$  sun

8:08 - Sun went behind cloud and he crawled into the 2" crack between  
his rock and a much bigger one.

8:13 - partly emerged, but I frightened him back in.

8:25 -  $48^{\circ}$  still cloudy, no open sun since 8:08.

8:28 - cloudy - cold but he emerged from under his rock  $\frac{1}{2}$  way.

8:36 - " " he emerged a little farther,  $\frac{3}{4}$

8:53 -  $48\frac{1}{2}^{\circ}$ , cloudy. Lizard still  $\frac{1}{2}$  to  $\frac{3}{4}$  exposed but no sun.

9:05 - a total of about 1 min. of filtered sun between 9:00 and 9:08. Lizard  $\frac{1}{2}$  exposed.

9:24 - air  $50^{\circ}$ . Cloudy. Lizard  $\frac{2}{3}$  out.

9:37 - Seemed in by ants. air temp  $50^{\circ}$

9:44 - head + forelegs out of hole - which is really in shade of rock (except top of head)  
cloudy bright + windy.

52  
9:49 - emerges further -  $\frac{2}{3}$ .

9:53 - moment of full sun.

9:56 - emerges very slowly - now all but tail in view. cloudy windy

10:10 all but tail out of hole. In last half hour only a few  
moments of full sun.

10:22  $\frac{2}{3}$  exposed, a few moments of sun.

10:30 air  $54\frac{1}{2}^{\circ}$ . 9:45 soil temp.  $12^{\circ}$ .

10:44 sun rapidly 1st found.

10:50 air  $55^{\circ}$

10:52 sun

10:54 now 15 ft found.

10:55 shade

11:02 scattered sun.

11:10 - trying to defecate - hemifores somewhat erect; supports  
self on tail, raises pelvis.

11:13 - mad dash <sup>1st</sup> + under large rock.

11:16 -  $\frac{3}{4}$  out from under rock.

11:18 - all out - sun + clouds. some wind

11:45 - air  $55^{\circ}$

11:55 - fairly bright sun for some time. Lizard moved  $1\frac{1}{2}$  feet under big  
boulder.

11:40 - in a half an hour saw 5 small lizards and 3 big ones.

11:58 -  $\frac{3}{4}$  out again.



- 12 09 Under rock again.
- 12 13 air 55°
- 12 14 Lizard out again. Full sun. Saw and pocket zippers first time today
- 12 20 Into burrow again. Full sun. no wind, quite flying.
- 12 24 Part way out again, but in shade.
- 12 25 3/4 out.
- 12 27 cloudy, cool. Only a 1-min flurry.
- 12 29 1/2 lizard out into burrow.
- 12 29 lizard out again.
- 12 45 no sun since last. Went down burrow just as rain started.  
Air 55 1/2°
- 12 55 Heavy cloud, cold wind - but his head is out of burrow
- 12 58 3/4 out lying on warm? rock.
- 1 02 Temp 50°, no sun.
- 1 10 Cold wet wind.
- 1 30 mist drizzle
- 1 32 ran 20 ft ~~west~~ south to rock, then across road (40 ft) to big pile of rocks.
- 1 37 temp. 51
- 1 38 bird, briefly
- 2 27 cloudy bright, cool wind, no signs of lizard. Temp. 49°
- 3 45 foggy 43°
- 4 45 steady mist 43°
- 4:13 mostly bright, steady mist, temp 45°
- 5 20 cloudy calm 42°
- 6 00 cloudy 40°
- 6 55 clear 39°
- 8 00 Partly heavy 38°
- 10 50 PM 37°
- 3/27 2 30 AM 40° rain drops
- 3 50 40° cloudy
- 4 45 38° cloudy
- 5 45 39° cloudy
- 7 00 40° cloudy windy 42°
- 7 35 41° cloudy breeze 5
- 8 15 8° filtered sun, no lizards out
- 8 38 air 8 1/2°, filtered sun. Lizard out, but must have been just out, his cloacal temp 7.5°
- 8 55 Lizard integrator reads 7.5
- 9 00 Black body integrator reads 6.7



3/28 - Temp. preference - Lillandsia desert  
Lizards from 1 mi E Chalchopala

#3 Lizard (p. Chalchopala) 80m SV ♂ telenoter in pt  
2:05 PM

#6 Lizard " too small for telenoter

#3 2:12 into cool box in sun on sandy substrate

2:15 air 28° lizard in shade

2:16 lizard in shade, 9.8/40 clicks (31.7°)

2:19 " " " 9.0/40 = (32.8°)

2:22 " " " soil temp surface 32.5°

2:24 " " " 8.2/40 = (33.8°)

2:27 " " " air 28°

2:31 " " " 8.1 = (33.9°)

2:40 " " " 7.9 = (34.2°)

2:47 " " " air 27°, soil 32.5°

2:57 " " " 8.0 = (34.1°)

3:05 " " " air 24°

only 3 very brief sojourns into the sun so far. Still avoids

3:08 shade. 8.1/40 = (33.9°)

3:18 still large shade, air 23.5°, his soil shade 31.5°

3:25 7.8/40 = (34.3°)

3:33 still avoiding sun

3:44 air 23.5°. still avoiding sun

3:47 8.7/40 = (33.1°)

3:54 8.9/40 = (32.9°) not seeking sun

3:57 air 22.4°

4:03 9.0/40 = (32.8°)

4:04 stayed in sun about 1/2 min.

4:08 shade still 8.8 = (32.9°)

4:12 shade soil 26.5°. air 22°

4:16 9.2/40 = (32.5°)

4:20 air 22°

4:24 stayed in sun about 1 min. 9.3/40

4:26 8.9/40 = (32.9°)

4:27 8.7/40 = (33.1°)

4:30 9.3 = (32.4°)

4:31 9.3 still not using sun, although  
not avoiding it as much as earlier.

4:36 9.9 after staying in sun (weak) for about 1 min.

4:38 10.2/40 = (31.3°)

4:39 10.0 = (31.5°)

4:42 in sun ± 1 min, 9.9 = (31.6°)

4:44 " " " 9.6 = (32.0°)

4:46 " " " 10.0 = (31.5°)

4:47 " " " 9.7 = (31.9°)

4:49 about equal time sun (weak) 10.1

4:51 in shade 10.1 = (31.5°)

4:52 in sun 10.0 = (31.5°)

4:54 in sun 9.9 = (31.6°)

4:55 " " 9.6 = (32.0°)

4:56 in sun 9.3 = (32.4°)  
into shade for ± 1 min

4:58 back into sun 9.9 = (31.6°)

4:59 still sun (weak) 10.3 = (31.3°)

4:59 1/2 moving around 10.4 = (31.1°)

5:00 into sun

5:00 1/2 10.7 = (30.7°)

5:01 1/2 10.6 still in sun = (30.9°)

5:02 1/2 10.1 " " " = (31.5°)

5:02 3/4 moved into shade

5:03 1/2 back into sun  
air 20° = (30.9°)

5:04 1/2 in sun 10.7 = (30.6°)

5:05 1/2 10.9 in sun

5:06 1/2 11.1 moved  
around = (30.4°)

5:08 11.1 very  
faint sun but he  
clings to it.

8.0/40 = 33.7°

9.0 = 32.8°

10.0 = 31.5°

11.0 = 30.5°



*Lislaemus multiformis* ♂  
 from 1 mi E Chalchopala

Thermal Preference. Telenote no. 3.

3/29 Put into box in sun.

6:53 - 37.2/40 <sup>(=16.3°)</sup> air 18.8°  
 7:00 - 17.7/40 lizard in sun, quiet <sup>(24.1°)</sup>  
 7:02½ - 14.3 <sup>(27.2°)</sup> " " "  
 7:05 - 11.4 <sup>(30.0°)</sup> " " "  
 7:06 - first movement (escape attempt)  
 7:07 - 10.0 still in sun <sup>(31.6°)</sup>  
 7:09 - 8.4 more scurrying, still in sun  
 7:10½ - 8.1 <sup>(33.9°)</sup> " " ½ " "  
 7:11½ 8.3 <sup>(33.7°)</sup> " " in sun (filtered sun, not real bright)  
 7:13½ 8.2 <sup>(33.8°)</sup> moved into shade briefly, returned to sun  
 7:15 shade & sun 8.3 [moving around in spots] <sup>(33.7°)</sup>  
 7:17½ " " 8.1 <sup>(33.9°)</sup>  
 7:19½ " " 8.1  
 7:21 had moved briefly into shade 8.1 <sup>(33.9°)</sup>  
 7:22½ into shade 8.1 <sup>(33.9°)</sup>  
 7:23½ " " 8.5 <sup>(33.4°)</sup>  
 7:24½ in shade still 8.4 <sup>(33.5°)</sup>  
 7:25 into sun 8.8 <sup>(33.0°)</sup>  
 7:26 in sun 8.3 <sup>(33.7°)</sup>  
 7:27½ part sun 8.6 <sup>(33.3°)</sup>  
 7:28½ in sun 8.3 <sup>(33.7°)</sup>  
 7:29 " " 8.1 <sup>(33.1°)</sup>  
 7:30 ½ sun 8.7 [= ½ in sun or part of time in sun + part shade]  
 7:31½ ½ " 8.6 <sup>(33.3°)</sup>  
 7:32½ ½ " 8.7 <sup>(33.1°)</sup>  
 7:34 ½ " 8.6 <sup>(33.3°)</sup>

♀ from 1 mi. E. Chalchopala. Using Schuller's, 5-64 mm.

7:37 dumped into sun-shade box. Pushed into sun.  
 7:39 sun.  
 7:46 in shade  
 7:48 in shade  
 7:55 ½ in sun, Close 32°  
 8:00 in shade 35.0  
 8:03 " " 32.0  
 8:06 air 22.2°  
 8:09 31.4° just as she moved into sun after about 2 or more minutes in shade.  
 8:14 31.0° " " " " " 2 or more " " "  
 8:20 several minutes partly in sun, then all shade at 8:19½. 8:20 = 34.6°  
 8:27 shade since 8:20. 30.4° Soil temp 23.2° (shade)  
 8:33 tot in sun, rest in shade since 8:27. 31.6°  
 9:05 Full sun for at least 1 min. 38.4°  
 9:14 34.2°, Had been in sun and in shade.  
 9:17 air 22°  
 9:19 32.2° had just stuck head into sun after several minutes in shade.





3/19/73 - Challapalca

Lizard Watch  
A

6:30 - cloudy but not too cold

Pycnophyll lizard

Tagged Tola lizard

gruels calling

not in sight

not in sight

2

not in sight

Disappeared down hole as ants walked nearby.  
was not out a few minutes earlier.

7:33

bright, cloudy

sitting on little rock

7:47

moves to tola clearing

7:54

went down Tola hole. air 55°

8:07

in tola clearing, quite dark.

10:13 bright, cloudy out in burrow

10:25

completely exposed to view

10:27

creaked to "partial shade" of bush  
back out to open

11:06 light  
sprinkles

11:27 lt.  
rain

11:50 lt. rain

to edge of  
went down hole & came out  
got out of con

11:53

re-emerging

:55

in "partial shade" of bush (from rain?)

11:56

open

open

12:10 - cloudy, light on pycnophyll

on dirt in center of tola

12:17

same

lost briefly  
1 yd S. tola - sitting at plot

12:18

leaves at some vegetation

12:20

eyes shut much of time  
bobs, moves 1 yd off pycnophyll, grazes at mat,  
moves 1 yd N, grazes. Runs West, across  
bush bath area, stops & defecates (long, red protrusion)

back to tola - dirt in center  
- close tracks of this guy  
... ? ...

12:30 sun

12:40 sun

moves slightly further west; grazes

on dirt in tola

12:45 sun

sits in sun

back sunning behind

12:47 sun

disappears into base of Destuca

lost for ~ minute

12:48 now moves into tola 1 ft to left, partial shade.

12:50

moved into sun near tola;

ran around in front of bush

12:54

chased towards tola & beyond to Destuca

ran off to left as if chased

1:06 overcast and suddenly colder.  
ran home by way of Festuca triangle. Bob2.

1:20 Cold wind from east. He disappears down his burrow in Pycnophyll about 1 min later

1:24 - sprinkle of rain air hail



3/19/73 - Chalapaalca

Pygophyllus lizard

Taggged Tola lizard

Ed west wind  
p 9 1/2°

midly bright  
nd cloudy

2:05 Pyeno o<sup>r</sup> with head out of burrow

not at usual place

2:15 Thunder and lightning no effect

2:18 cold windy rain begins

2:19 liz went down Pyeno burrow.



AKP

Lizard Watch

(1)

*Pyrenophthorus* lizard - see OP notes about implant on 3/20, and shift to *Pyrenophthorus* mat across road.

lizard with telemetry implant

6:25 - sun hits *pyrenophthorus* under which lizard is

3/21/73

7:00

34.2

34.3 ~~climb~~

33.9 time/20 slabs

33.6

33.7

7:15 - - - 33.6

34.0

33.6

7:25

34.0 ; 33.9

7:37

34.0

7:42

34.1

7:50

34.8 6.0°

34.6 6.1

$T_A = 37^\circ$  cold wind from east

7:57

34.8

8:05

35.0 5.0°

→ ♀ lies on *pyrenophthorus* pad! cold wind no other lizards seen out

8:12

34.8

8:14

34.9

8:20

35.0

8:25

35.2 5.8

suddenly louder: 8:29

8:30

33.6 - in sun at burrow entrance - all exposed

8:31

31.3

8:32

30.4

8:32

29.0

8:33

27.6

8:33

26.0

8:34

24.0

8:34

23.0

8:35

21.8 13.9 -  $T_A = 43.0$

- ♀ still out on *pyrenophthorus*!

8:36

21.0

8:37

20.0

8:38

19.3

in full sun. Cold wind

8:39

18.7

8:39

18.3

dark grey color; head almost black - dorsally

8:40

17.5

back is perpendicular to sun

8:41

17.0

resting mostly on dead *pyrenophthorus*

8:42

16.1

8:43

15.6

[fingers numb - observers call - cold wind]

8:44

15.3

8:45

14.6

8:46

14.2

8:49

13.5

$T_A = 45.$

8:50

13.0



3/21

(2)

	8:52 AM	12.8 / 20 chits	
	8:53	12.6	♀ still on Pgc 1
	8:55	12.1	
Butterfly	8:57	11.8	
little black toad hopping by. Hopped 12' in 3 min. Into tola complex. at 8 min, had gone 30 ft., straight line. $T_8 = 16.2^\circ$	8:59	11.4	
	9:02	10.7	$T_A 46.0$ all sun - cold wind breeze
	9:06	10.2	♀ still on Pgc 1
	9:07	19.8 / 40	♂ shifts position slightly
	9:09	19.9	" still at burrow entrance, full sun, down out of wind
	9:11	19.5	(♀ still on Pgc 1)
	9:13	19.0	
	9:14	18.7	
	9:15	18.6	$T_A - 46.0$ ♂ still quite dark grey
	9:17	18.6	still full sun - further out of burrow
	9:20	18.0	
	9:23	17.5	→ 4 1/2" liz appears close to OP.
	9:24	17.5	
	9:27	17.2	[could't find tagged tola: ♀ still on Pgc 1]
	9:29		moved down into burrow further
	9:30	17.8	
	9:34	19.7	
	9:34	20.0	full sun, cold breeze $T_A 49.0$
	9:37	20.0	"
	9:39	19.2	[♀ took 1 min excursion off Pgc and back]
	9:43	18.9	
			Brown Pgc: 21.7 Green " : 22.9, 18, 19
	9:45	18.2	
	9:44	17.4	♀ on Pgc 1 sunny, cool breeze $T_A = 51.0$
	9:53	17.3	
	9:58	16.7	Still at burrow mouth; quite grey ♀ on Pgc 1; Tagged tola ♂ on marker rocks It gone again
alpacas turned out.	10:02	16.7	
	10:05	16.7	
	10:08	16.8	
	10:13	16.2	all out of burrow mouth - on <del>off</del> Pgc. (full sun cold & wind)
	10:19	16.3	" ; ♀ on Pgc 1
	10:23	16.2	" "
	10:29	16.2	
	10:30		♀ frightened (?) leaves ? or goes in hole - can't be found
	10:37	16.3	♂ on Pgc - all out of burrow can't find it or
	10:44	16.1	" "
	10:47		bobbing $T_A = 55.0$ full sun, cold breeze
	10:48	16.0	
	10:49		left burrow after bobbing and going into mouth of burrow
			briefly
	10:52		Went 3 ft. away and stopped with front feet on a pebble bobbed when he arrived at pebble
	10:57		cool breeze lessening; the first cloud.
	10:58		off rock, bob, then into tola bush
	11:00		lying on dead Festuca, all this within 4 ft. of the overhanging ledge





3/21/73

11:03 Cold wind again and partly cloudy. Eyes shut.  
 ..... lost in Festuca .....

11:25 in middle of Festuca

11:27 8.8/20 cloud: lig in Festuca clump on dead leaves

11:30 moved in under dense Festuca

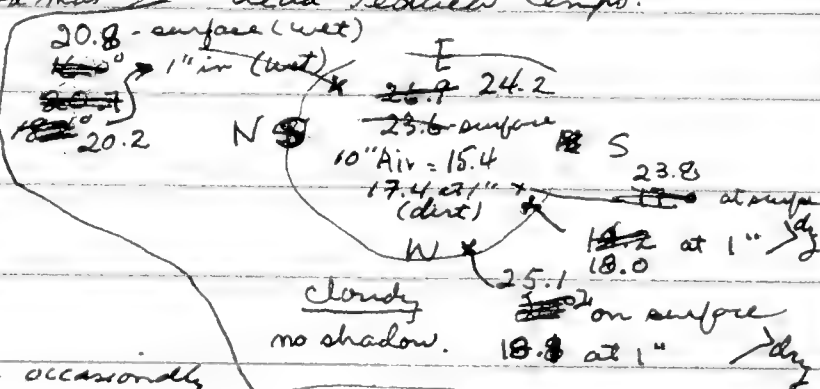
11:37- can't pick up signal. Cloudy since 11:27.

11:43 sitting on dry Festuca still cloudy  $T_A = 12.9 = 53$ .

11:48 8.8/20 still cloudy: lig is sitting on spot out of wind.

12:15 8.5/20 same place: flat, dead mat Dead Festuca temps.

12:18 - first seen after long cloud  
 then bright cloud almost  
 immediately



12:30 left basking pod.  
 bobbing in open

12:35 has moved 20 ft north, bobbing occasionally  
 (maybe lizard on rock 3 ft. away)

12:45 about 50 ft north of burrow

12:47 temp. just under dead grass of his Festuca basking pod  $28^\circ$  <sup>cloudy</sup> <sub>high</sub>

12:48 lying on a dead Festuca pod.

12:50 moving again.

12:55 seen for about 10 minutes now

1:03 he is now 30 yds from last night's burrow

1:10 somewhere in a big ring of Festuca,  
 cold wet wind blowing, heavy clouds.

1:20 hail started, lizard in Festuca. <sup>another med. lizard disappeared</sup> into a Festuca clump 3 ft away.

2:52 bright-overcast, lizard in middle of live-dead, hail filled Festuca clump

2:52 35.8 sec/20 <sup>clips</sup> ~~clips~~

2:58 36.2 sec/20 <sup>clips</sup> ~~clips~~. Nearly similar Festuca,  $4^\circ$ . Lizard's home  
<sup>5.4"</sup>  
 burrow was clogged completely with hail.

4:02 37.4/20 Festuca soggy + snowy. weather soggy =  $4.9^\circ$

4:08 more rain

5:35 38.8/20 <sup>4.4"</sup> cloudy wet cold drizzle



March 15, 1972

~~March 15, 1972~~

21.9/10 = 4.3°

9:10 PM 19.1/10 = 4.6°

12:15 AM - 38.2/20 = 4.6°

3:20 AM - 39.0 = 4.3°

5:40 39.4 = 4.1°

6:20 39.3

6:26 sun arises

6:56 40.0 full sun, calm = 3.8°

7:15 39.7

7:21 39.3

7:25 39.8

7:33 39.3

7:35 39.3

7:38 39.3

7:43 39.5

7:49 39.3

7:52 38.2  $T_A = 13.0$

7:56 39.3

7:59 39.3

8:06 39.0 = 4.2°

8:14 39.0

8:20 39.3

8:25 39.0

8:27 39.3

8:28 39.0

8:31 40.5

8:33 38.8

8:34 38.7

8:35 39.0

8:35 38.5

8:38 38.8

8:39 38.3

8:41 38.7

8:48 38.0 4.6°

8:52 38.0

8:53 38.0

8:58 38.0

9:02 37.8

9:07 38.1

9:11 38.5 = 4.5°

9:16 38.7 < loss of signal

9:27 37.0 = 5.1

9:28 36.0 = 5.5

9:29 35.0 = 5.9°

9:30 34.0 = 6.3°

9:32 32.8 = 6.6

9:34 31.0 = 7.8°

9:35 29.0 = 8.9°

9:37 27.2 = 10.0

9:38 26.0 = 10.7

9:39 24.0 = 12.2

9:40 22.0 = 13.7°

- Lane saw other salt lizard out.

not visible to us during this warmup

butterflies



sunny, some wind  
 9:42 AM 21.0 sec / 20 clicks  $14.5^\circ$   
 9:43 19.0 =  $16.4^\circ$   
 9:45 dropped out of hole  
 9:50 outside of hole  
 10:00 11.5 =  $26.2^\circ$   
 herding him to hole  
 9:55 cold wind from east begins  
 10:02 herded him to 12 ft to hole, kept him  
 with him  
 10:12 still at same position where we started feeding him.  
 11:00 back in hole again, see out wind.  
 10:17 still same  
 10:25 also same  
 10:30 (put him) Temp 8.7 sec / 20 clicks =  $31.3^\circ$   
 10:33 same again  
 10:37 2 sec  
 10:40 2 sec  
 10:45 2 sec  
 10:50 2 sec  
 10:55 2 sec  
 11:00 16.5 / 40 =  $32.5^\circ$  full sun; looks on again  
 11:20 out of hole in bottom of cup  
 11:25 back in hole  
 insert ref P.  
 11:30 22.1 = 18.5 sec Temp 14.5  
 11:40 29.5 =  $21.1^\circ$   
 11:45 34.5 =  $19.6^\circ$  - partly cloudy  
 walked about 4 ft from hole to 10 ft  
 down, closed  
 12:00 low hole  
 12:40 34 / 40 =  $18.5^\circ$



Pearson  
1973

*Geolacerta multispinis*

(5 1/2)

3/22

telemetered lizard. Insert in A K Pearson notes.

8:30 still snow patches

10:46 still a few snow patches

11:32 has been on testis for  $\pm 10$  minutes

sun + shade, no wind.

11:40 sunny, clouds all around, breeze from west.

11:44 hot

11:47 under tola

12:00 9 minutes basking on rock. Moved from there to another rock to bask.

12:15 still basking on other rock  $16.2/40 = 32.6^\circ$

12:23 still on rock.

12:24 left rock. Thunder, clouds, no wind

12:26 wee sprinkles.  $17.8/40 = 30.8^\circ$  cool breeze from west, mostly cloudy.

12:37 Moved him down hole  $24.4/40 = 24.8^\circ$  but he didn't like this hole and with a little herding he led her-line for his *Phrynosoma* burrow of right before last.





3/22/72

12:52 AM  $T = 10.7$  hail - in house, dry outside

12:53 -  $19.2/25 = 15.6^\circ$

12:54 - 21.1

12:55 -  $21.0 = 14.5^\circ$

12:56 - 21.2

12:58 -  $24.3 = 12.5^\circ$

1:02 -  $22.2 = 13.6^\circ$

1:15 -  $27.9 = 9.6^\circ$

1:18 -  $28.1 = 9.5$

1:24 -  $26.0 = 11.5^\circ$

1:26 -  $26.0 = 10.7^\circ$

1:32 - 26.2

1:35 -  $21.7 = 10.3^\circ$

1:49 -  $27.2 = 11.0$

2:01 -  $27.6 = 9.8^\circ$

2:14 "  $27.9 = 9.6$

2:40 rain

3:32 rain  $27.9 = 9.6^\circ$

4:00 -  $28.6 = 9.3^\circ$

5:13 rain just  $29.1 = 9.1$

6:20 cloudy 29.4

8:00 " 30.0 =

3/23 - 12 midday misty - clear 32.0 ambient 32° frost calm misty

3 10 AM 33.9 - 1.5" 28° frost clear calm

5 55 AM 35.0 - 1.5" 28° minus 28°

6 45 AM 35.4 - 1.1

7 12 36.0 - 0.7

7 32 36.0 =

7 40 36.3 =



3/23 Teleretered lizard.

7 47 36.2/20 sunny.

7 57 36.4

8 06  $\frac{1}{2}$  in mouth of burrow but no chicks, changed back position.

8 11 not back up

8 17 not back up 36.3/20 = 36.3

8 22 up, no signal

8:29 - 32.7/20 6:45 = 6:15

8:33 24.4 see

8:36 22/ sitting in full

8:34 21.7 sun at burrow

8:35 20.9 = 14.5 entrance

8:36 19.8

8:37 19.0

8:37+ 18.4

8:38 17.6

8:38 17.0 = 11.1

8:39 16.6

8:39+ 16.2

8:40 15.9

8:40+ 15.3

8:41 14.5

8:41+ 14.2

8:42 14.0

8:42+ 13.6

8:43 13.2

8:43+ 12.8

8:44 12.4

8:45 12.2

8:45+ 12.0

8:46 11.7

8:46+ 11.6

8:47 11.0

8:47+ 10.8

8:48 10.8

8:48+ 10.4

8:49 10.4

8:49+ 10.2

8:50 - 10.2/20

8:51 - 10.0

8:51+ - 9.8

8:52 - 9.7

8:52+ - 9.6

8:53 - 9.4

8:53+ - 9.4

8:54 - 18.0/40

8:54+ - 17.6/40

8:55 - 17.3

8:56 - 16.8

8:57 - 16.6

8:57+ - 16.3

8:58 - 16.0 still as before

8:59 - 15.7 33.5°

9:00 - 15.6 full sun;

9:00+ - 15.3 some cool

9:01 - 15.2 breeze

9:02 - 15.2

9:02+ - 15.0

9:03 - 15.0

9:04 - 15.1

9:05 - 14.8

9:07 - 15.0 = 34.2°

9:09 - 15.0

9:12 - 15.4

9:15 - 15.2

9:17 - 14.8

9:22 - 15.2

9:26 - 15.4

♀ back at Pycnosphyllum #1

9:30 15.4 clear, cool breeze

9:34 Ground tyrant ran 3 ft away,

no response.

9:35 15.6

♀ still on Pycno.

9:40 15.6

This is full exposure to bright high sun, lying on dead Pycnosphyllum

9:45 15.0



Tethered lizard.

9:52 - 15.8/40

9:57 16.5 // perhaps cooler breeze, no noticeable change in posture.

10:03 16.1 31.0

10:09 ran 3 ft. to edge of rocks, balled.

10:11 chased or chased by another lizard (♂?)

10:15 AM - moved him

tethered in sun: on dirt (the tethered lizard)

10:25 - 19.3/40 27.0

10:27 - 19.2/40 27.0

10:31 - 17.7 - 27.0

10:34 - 16.9 - 27.0

10:37 - 16.2 sandy soil surface 24°

10:40 - 16.4 27.2

10:43 16.5 normal - hot.

10:44 - sprayed with Testor's flat black.

10:46 - 16.9 31.4

10:48 - ~~16.2~~ 17.2

10:49 16.9

10:51 16.3

10:52 16.0

10:54 15.6

10:56 15.5

10:58 15.2

11:00 15.3

Clear sky

over misty cloud.



Pearson, O.P.

1974

Catalogue

# 5090 - 5176

Peru





1974

Quebrada aqualina  
3 mi N. Mollendo, 100 ft., Dept. Arequipa, Peru  
March 21

skull only  
5090 ♂*Phyllotis darwini*

faint tip of left lobe white; others pink

pipette fr. top: 2.10; lung vol. = 1.49 cc

white  
testes 10 mm, SV 15  
41 g. ♂ - tickssaved lungs, heart, blood smear.  
tail 114, HF 25skull only  
5091 ♂

" "

pipette fr. top: 2.30; lung vol = 1.69 cc

white  
50.0 ♂ - testes 10 SV 10 ticks  
saved lungs, heart, blood smear  
Tail 119 HF 26skull only  
5092

" "

pipette fr. top 1.63; lung vol. = 1.07 cc

40 g. testes 10 mm white, SV 10 ticks  
saved lungs, heart, blood smear  
Tail 125 HF 26 1/2skull only  
5093

" "

pipette fr. top 2.06 foamed when cut  
lung vol. = 1.45 cc43 g. testes 11 mm white, SV 16 ticks  
saved lungs, heart, blood smear  
tail 110, HF 25skull only  
5094 ♂

" "

pipette fr. top 1.85; lung vol. = 1.24 cc

36 g. Testes quite white, SV 14 ticks  
saved lungs, heart, blood smear.  
Tail 113, HF 25

calibration of volume gage: 0.61 cc without lungs  
 fluid temp = 28°C

5095 ♂

*Mus musculus*171 x 86 x 18 x 14 testes 8, SV 9.  
16.5 g.

5096 ♀

*marinus*

+ 2 other *Mus* (a 12-yr male with descended testes, and a 7.5 g juv with <sup>white</sup> tail tip.  
 uteri brown, with scars, much mammary tissue.  
 204 x 107 x 13 x 23 19 g.

1 mi. E. Matarani, 600 ft., Dept. Arequipa  
March 21, caught March 20

5097 ♂

*Phyllotis darwini*[147] x [47] x 26 x 25 testes 9, SV 10  
33 g.

+ heart + muscle in phenoxyl and blood smear

skull only  
5098 ♂

" "

165 x 88 x 23 x 22 17 g. test 4  
SV 2

+ blood smear

~~5099~~

3 mi N. Mollendo again March 21

5099 ♀

*Phyllotis darwini superstitus*224 x 111 x 25 x 25 39 g. 3 fetuses left, 1 rot  
15 mm CR

+ heart + phenoxyl + blood smear



1974  
O Pearson

March 22 (all caught March 21)

- 5100 ♂ Phyllotis darwini 189 x 99 x 24 x 22 19.5g. Testis 4, SV 2  
+ heart + blood smear
- 5101 ♂ Phyllotis darwini 212 x 113 x 25 x 24 34. gms. testis 10; SV 13  
ticks + heart + blood smear
- 5102 ♀ Phyllotis darwini - tail 104 - - 24 gms 2 ut, 1 left  
vag. open; preg + heart + blood smear 13 mm CR
- 5103 ♀ Phyllotis darwini 178 x 90 x 22 x 21 19 gms  
vag. closed ut. + vag white, not minimal + heart + blood smear
- 5104 ♂ Phyllotis darwini 170 x 85 x 23 x 21 17.5 gms testis 5, SV 2  
+ heart + blood smear

2 mi E. Atiquipa, 1200 ft., Dept. Arequipa, Perú

March 24, 1974

- 5105 ♀ Rattus rattus 408 x 222 x 36 x 25 147 gms  
vag. open nipples med. + heart + blood smear

March 25

- 5106 ♂ Calomys? sp. 118 x 50 x 20 x 17 9.5g.  
700 ft.  
4.5 mi. E. acari, Dept. of Arequipa, Peru

March 26

- 5107 ♂ Oryzomys 306 x 150 x 32 x 26 126g. Testis 20 SV 25.  
Found in shaman in acacia. Stomach with  
oats + green
- 5109 ♂ Oryzomys Big adult caught by anta, left alive until  
April 13. 339g. Testis 20 mm SV 24 mm  
176 x 166 x 35 x 25 136g.

8 1/2 mi. NW Bella Union, 2400 ft.; Dept. of Arequipa

March 28

- 5110 ♀ Phyllotis darwini 268 x 146 x 27 x 25 46g. Preg 3rd 2 left  
10 mm diam.
- 1 mi. E La Planta del Urinado above acari, 1000 ft.

March 28 (caught March 27)

- 5111 ♂ Phyllotis darwini 160 x 88 x 23 x 19 12g. T 5 mm SV 4 mm



note: full lact. + mid-preg.  
preg: 2R: 2L, 10m diam  
lactating

5112 ♀ Phyllotis

[199] × [76] × 26 × 29

52 gm

<sup>NNW</sup>  
8½ mi NE Bella Union, 2400 ft., Dept. Arequipa

511

March 29

5113 ♀ Ph. darwini

[230] × [119] × 26 × 25

40g, 1 emb. rt. ½ left  
6 mm diam

5114 ♀

" "

263 × 138 × 25 × 26

48g, 2 emb. rt. 2 left

5115 ♂

Oryzomys greenfieldi in stomach

313 × 158 × 35 × 23

120 g. testis 16 SV 18

discarded one Mus with scars, lactating

5116 ♀ Oryzomys

308 × 152 × 34 × 19

92 gms

veg. open; parous

5117 ♀ Oryzomys

305 × 156 × 35 × 23

121 gms

parous

skull only

5118 ♂

"

302 × 157 × 37 × -

130 g.

testis 16 mm

SV 16 mm

5119 ♀

Phyllotis darwini

243 × 128 × 24 × 28

35g.

preg: 2R; 2L.

5120 ♀

"

[220] × [112] × 26 × 28

35g.

pelvis not open  
estrous

Discarded Mus 9g. ♂ Testis 7 SV 11

<sup>NNW</sup>  
8½ mi NE Bella Union, 2400 ft., Dept. Arequipa, Peru

March 30, 1974

5121 ♂ Phyllotis

heart + blood  
243 × 125 × 25 × 30

48g  
testis 11 SV 17

5122 ♂ Phyllotis

heart + blood  
260 × 131 × 27 × 27

60g  
testis 13 SV 18

5123

badly eaten - foot + lower jaw left

5124 ♂ Phyllotis darwini

273 × 141 × 27 × 28

57g. caught by hand  
during day.

skull only

5125 ♀

Mus

152 × 78 × 17 × 14

12g. Emb. 1 rt 2 left  
9 mm CL. Pelvis close



march 31

skull only	5126	♂	<i>Ph. annularis</i>	caught I 9	[179] x [84] x 23 x 22	23g	T 9 SV 14
	5127	♂	"	caught E 9	194 x 104 x 22 x 23	19g	T 8 SV 13
	5128	♂	"	caught I 8	181 x 98 x 23 x 23	19g	T 8 SV 12
	5129	♂	"	caught J 5	<sup>tagged 649</sup> 200 x 112 x 23 x 23	21½g	T 8, SV 11
skull only	5130	♀	"	caught D 10	<sup>tagged 645</sup> [143] x [52] x 22 x 23	24½g	Vag. open preg. 3 left 11 mm CR
skull only	5131	♀	"	caught G 4	<sup>tagged 650</sup> [151] x [58] x 22 x 23	19g	ut. scars lactating
skull only	5132	♂	"	caught A 8	185 x 97 x 22 x 25	17½g	T 7 SV 13
	5133	♂	"	caught A 9	197 x 103 x 22 x 24	27g	T 9, SV 15
skull only	5134	♂	<i>mus</i>	caught G 10	<sup>tagged 655-646</sup> 141 x 70 x 16 x 12	10g	T 6, SV 10

hairy tail

	5135	♂	<i>Phyllotis darwini</i>	caught H 6	<sup>tagged 653</sup> [225] x [95] x 28 x 29	62g	T 11, SV 18
skull only	5136	♂	"	caught G 1	[204] x [81] x 28 x 28	52g	T 11 SV 16
skull only	5137	♀	"	caught C 1	<sup>tagged 662</sup> [180] x [66] x 26 x 28	38g	vag. open preg. 2R; 3L 10 mm diam
skull only	5138	♂	"	caught H 2	<sup>tagged 658</sup> 252 x 131 x 27 x 29	48g	T 10; SV 19
skull only	5139	♀	"		258 x 138 x 27 x 29	61g	ut. emb. 19 gms together: late preg. 28 mm CR 3R, 2L
skull only	5140	♂	"		237 x 128 x 24 x 28	38g	T 10, SV 19

5 mi. NW Torquedala  
Cayore - Torquedala Road, 11,400 ft., Dept. of Magway

april 3.

	5141	♀	<i>Bolomys berlepschii</i>		165 x 67 x <sup>21</sup> <del>23</del> x 13	40g	lactating and 7 med. embryos
	5142	♂	"		166 x 67 x 21 x 15	37g	testis 10- SV "
skeleton only	5143	♀	"		168 x 68 x 21 x 15	35g	lactating and late preg. 6 emb.
	5144	♀	<i>Phyllotis magister?</i>		[267] x [128] x 29½ x 25½	77g	lact., ut. scars
skull + heart	5145	♂	<i>Phyllotis darwini</i>	no pectoral streak	[198] x [87] x 24 x 24	42g	testis 9, SV "
skull + heart	5146	♂	"	no pect. streak	[177] x [70] x 25 x 27	53g	testis 10, SV 16
skull + heart	5147	♂	"	"	[202] x [95] x 25 x 24	42g	testis 10; SV 15
skull + heart	5148	♀	"	"	[183] x [72] x 25 x 25	44g	vag. not open preg. 2R; 4L 7 mm diam
skull + heart	5149	♀	"	no pectoral streak	[166] x [60] x 25 x 25	38g	lact. and preg. 5R; 0L burrs





skull + heart		pelage juv.; no streak		testis 7.5
5150	♂	<i>Phyllotis darwini</i>	178 x 90 x 23 x 20	23gms SV 5mm
skull + heart				uteri pink; vag. large
5151	♀	"	pelage juv. 162 x 81 x 23 x 20	15gms vag not open
skull + heart + blood				some mamm. tissue
5152	♀	"	no streak [200] x [88] x 25 x 25	36g uterine scars
skull + blood				
5153	♂	"	juv., no streak 195 x 100 x 24 x 21	21gm testis 8, SV 4
skeleton + heart + blood				
5154	♂	"	no streak 240 x 119 x 26 x 28	52gm testis 10, SV 17
skull + heart + blood				
5155	♂	"	no streak [222] x [105] x 24 x 25	43gm testis 10; SV 20
skull + heart + blood				
5156	♀	"	no streak 231 x 111 x 24 x 26	41gm lactating uterine scars

Barro Colorado Rd., 13,900 ft.

heart only				
5157	♀	<i>Phyllotis darwini</i> , caught April 5, bled April 6		Brnuff embryo pelvis slightly open
			226 x 114 x 26 x 25	41g.

<del>5158</del>	5mi N	<del>Lago Loricata</del> , 15,300 ft., Dept. of Maguayana		
shallowly				
5158	♂	<i>Ph. darwini</i>	collected in sun 230 x 110 x 27 x 26	58g. testis 13 SV 30
+ 2 juveniles hardly out of the nest; dead in trap.				

April 7, 1974

5mi N Lago Loricata, 15,300 ft., Dept. of Maguayana

skull + heart + blood				uterus tiny
5159	♀	<i>Ph. darwini</i> juv.	136 x 64 x 22 x 18	13gm
5160	♂	" " "	146 x 71 x 23 x 19	14gm testis 3, SV 2
5161	♂	" " "	158 x 76 x 25 x 19	15.5gm testis 4 SV 3
5162	♀	" " "	136 x 63 x 23 x 18	12gm uterus juv.
+ skull				possibly preg, no postpartum mammary tissue
5163	♀	<i>Chinchillula sahamae</i>	273 x 103 x 33 x 37	130gm vag. open lungs 3R:2L
+ skull				
5164	♀	<i>Auliscomys sublinis</i>	161 x 51 x 22 x 21	39gm vag. open preg: 3R:0L

April 8, 1974

+ skull				
5165	♀	<i>Auliscomys boliviensis</i>	203 x 81 x 27 x 27	78g 4 late emb.
5166	♂	" "	219 x 91 x 30 x 28	66g testis 11; SV 16



April 9

skull lungs + heart

skull only

5167 ♂

Ph. darwini

lungs, heart, blood, skull.

235 x 119 x 27 x 27

testis 12

53 g SV 21

This one caught yesterday, not + cold - almost dead  
some leakage lung vol = 2.6 cc

skull only

5168 ♂

" "

230 x 110 x 27 x 25

testis 13  
56 g SV 21

This one escaped after measurement, squashed  
some leakage lung vol. from top = 1.72 lung vol. = 1.19 cc

skull only

5169 ♀

" "

226 x 105 x 28 x 25

interns with  
51 g scars

lung vol. from top = 2.58 : lung vol = 2.05 cc

skull only

5170 ♀

" "

221 x 102 x 27 x 27

50 g Bump embryo  
2 at 2 left.

lung vol. from top = 2.17

lung vol = 1.64 cc

skull only

5171 ♀

" "

lactating + preg. fetuses 13 mm CR, 3 at 2 left.

222 x 107 x 26 x 26

55 g. they weigh  
2.8 g.  
all together

lung vol. from top = 2.28

lung vol = 1.75 cc

16°C.

calibration of lung volume giv : 0.53 cc without lungs.

skull only

5172 ♀

Ph. darwini

Preg 3 at 1 left, 16 mm CR

236 x 119 x 27 x 27

53 gm weigh  
4.0 g.

some leakage

lung from top 2.60 : lung vol = 2.15 cc

+ skull

5173 ♀

Ph. darwini

lactating + preg, 3 at 3 left,

228 x 106 x 27 x 26

42 g. 10 mm CR  
2.5 gm

8 1/2 mi NNW Bella Union, 2400 ft, Dept. D. argus

caught March 31, killed April 13

+ liver + kidney + heart.

5174 ♂

Oryzomys.

352 x 181 x 36 x 25

145 g. testis 17 mm  
SV 22

+ liver + kidney + heart

5175 ♀

"

307 x 157 x 32 x 25

74 g. not preg.

+ liver + kidney + heart

5176 ♂

"

357 x 169 x 36 x 24

155 g. test 17 mm  
SV 17



Pearson, O. F.

1974

Journal

Peru

Calif.



Pearson  
1974

Tue.  
Mar. 19.

1 mi  
east of Matarain, 600 ft.; Dept. arequipa, Peru

after 2 days in Tarma getting the truck licensed etc. finally left about 10:30 A.M. Lots of Zonotrichia capensis singing about the city, such as Hotel Tarma and the palace along avenida Bolognesi. Neither saw nor heard a single English sparrow. The Zonotrichias seem to have more the battle that used to be waged along Bolognesi.

Drove north to Moquegua. The sloping plain north of Tarma that was green last year in March is all dried up, but lots of miners there. Arrived Moquegua about 12:15. Post office closed, not open until 3 p.m., so we left for Mollendo. Fairly good, almost dried-up vegetation coming down into Matarain. Lots of mouse and/or lizard tracks at one place where we stopped. The lowa between Matarain and Mollendo, recommended by Robt. Hughes, is dry, almost, about as "lusk" as Muro Sana in 1973 March. Not enough rocks & shelter for mice, however, so we drove inland a couple of miles and camped at 5:30 p.m. Clear windy. I put out about 78 small Shermans baited with rolled oats. Anita put out 15 large Shermans. Soil powdery dry, a chalk quarry nearby. A few small bushes & waxy plants in bloom, a few clusters of candelabra cacti looking sad.

The weather in Tarma was overcast all three nights but cleared each morning.

March 20

2 Phyllotis darwini in my traps, one of them juveniles. None in Anita's. No Zonotrichias, heard burrowing owls and I think seed snipe. No ants.





Drove into Mullendo and met Robt. Hughes, then drove south to Mejia and about 10 miles beyond looking for a good mossy loma. The swampy plain at the mouth of the Rio Tambo is impressive. Lots of egrets, ducks, shorebirds, etc, surely a tremendous area for migrating birds.

Best we could do is a steep gully half-way between Mullendo and Matarani. a good road goes down it to an abandoned installation of some sort at the beach. (But fenced, with a watchman). We camped partway down the canyon amid powdery dry soil and chalk, steep rocky slopes, and assorted green bushes down the dry wash. a bit of dry <sup>Distichlis</sup> "maritime grass", a few small dry cacti cacti up in the rocks. a few lizards seen, two burrowing owls sitting out in the hot sun, and mouse tracks in the powder along the road. Wrens + doves.

Just before dusk set a couple of trap lines that included segments among angular boulder slides up on ~~the~~ both sides of the canyon (dried weeds + some green bushes), along the dry wash which is a narrow gully full of weeds and bushes in chalky-soil, and along a wall and among boulders on the valley floor. Lots of mouse footprints around the edge of the vegetation along the dry wash.

afternoon hot + bright sun. How can the burrowing owls sit out there and take it? a few chooks at dusk. big + small shrews,

March 21

night clear. my 70 traps had 3 mice, (along the bushes in the gully, and 11 Phyllotis darwini.



Searson  
1974



3 mi. N Mollendo, 100 ft. March 22, 1974  
Quebrada Agualeña.



acuta had 39 big + little shermans, mostly in the valley bottom; caught 1 marmona and 1 Phyllotis. The Phyllotis could eat care less about the vegetation at the bottom of the canyon, they liked the boulders on the slopes. all were carrying tails on wheels. Breeding males, juveniles, and a pregnant female among those dissected today.

Spent morning fleshing lungs etc, afternoon skinning. Hot and sunny.  $28^{\circ}$  in the shade at 3 P.M. Hunt 18 big shermans upon the north slope where the trucks roll down the slope.

Got a good look <sup>at</sup> a medium-large Tussonia while fleshlighting last night.

march 22

my 18 shermans in what was good Phyllotis habitat last night (up in rocks below the road shrines) caught only one mus. Night partly with thin overcast but day clear and hot. Embedded lungs and dissected in morning, then visited with Hughes in molledo. He calls our campsite Quebrada Aqualina. He said there was some rain 2 months ago which preceded a modest flowering. Apparently enough to start the mice breeding. Then drove up the hill toward Arequipa. Vegetation best at about 1500 ft. at 1820 ft among grass, yellow daisies, white everlastings, saw flocks of Zonotrichia. at 2740 m is a flat park with shrubs and cacti in the floor of the canyon along the old road best approached from the upper end of the road.

Drove until after dark and camped at 8 p.m.



in last year's campsite at 3200 ft. above Camaná.  
all dried up. Saw no mice jacklighting.

March 23

Vegetation includes a thick-stemmed sorrel, not quite  
dried up, and some low cylindrical cacti that look like  
cav pipes from a distance. Chobani-misti-Pichupichu does  
but then hazed up.

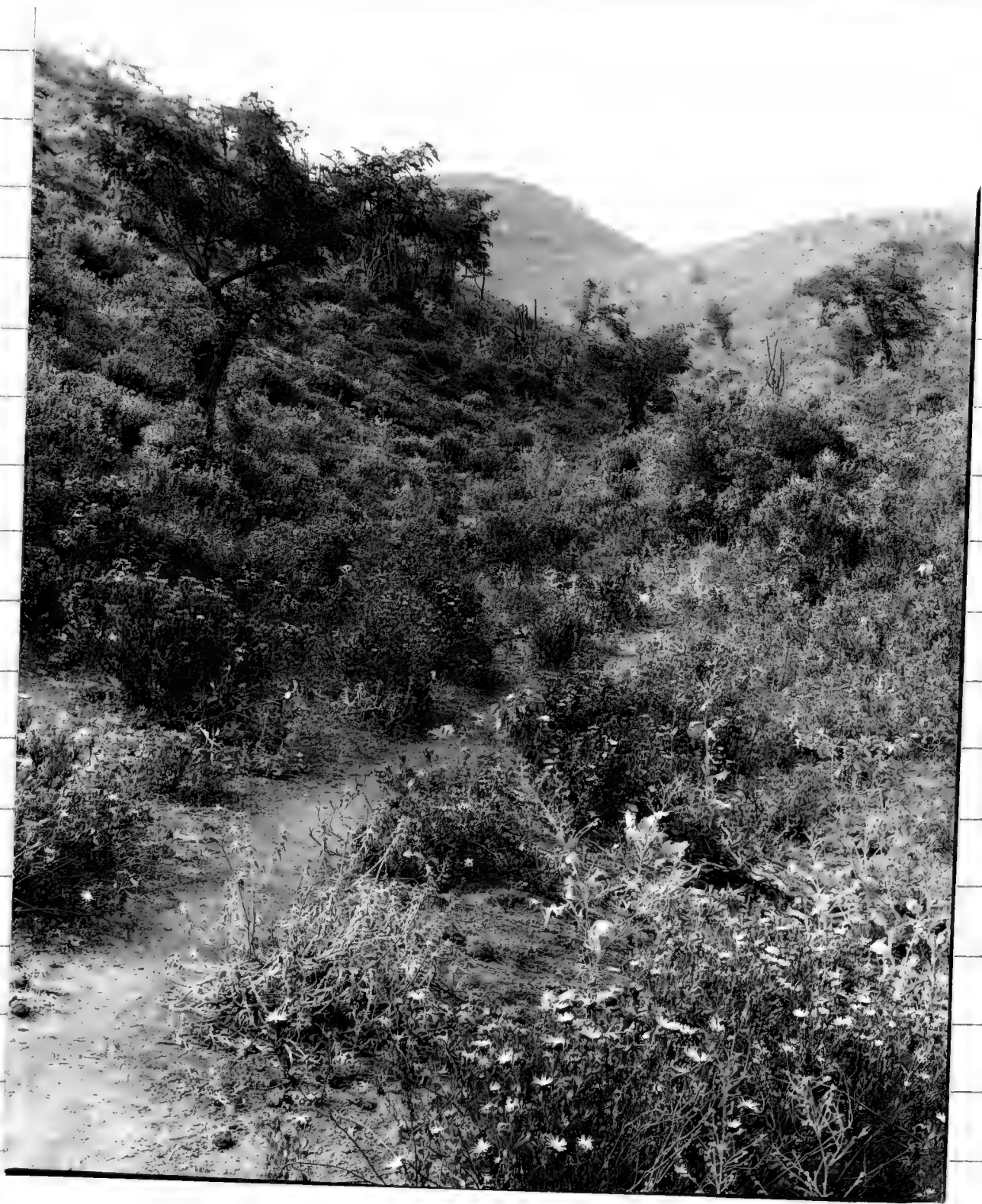
Drove north to Atiquipa, numerous cordons. Numerous  
conversations with assorted people who seemed knowledgeable  
indicate that Atiquipa was unusually lush last year, with  
rains lasting all the way up into April. Hence our  
green photo from last year was at a season when  
things ordinarily would be dry. This year is unusual  
also because of some rains about 2 <sup>months</sup> ~~years~~ ago. Everyone  
agrees that last year there occurred a spectacular  
outbreak of rats, which destroyed much of the harvest.  
all agree that they were <sup>much</sup> bigger than the *Phyllotis darwini*  
on our pinning board.

We camped up the valley about 2 miles east of  
Atiquipa, 1200 ft. Olives, fruit trees, and other crops  
near the stream. The hills fairly green with knee-high  
to waist-high bushes, mostly *Grudelia* in full bloom,  
but several other species mixed in, all heavily grazed  
by cows + goats. A sprinkling of trees about 12 feet  
tall: a big-leaved one with milky sap locally called  
*Platanilla*, a legume with fairly large leaflets and rose-  
like thorns and broad orange pods 3 or 4 inches long, and  
another finer-leaved legume with very long thorns.  
also clumps of tall *Cereus* cactus (blooming) frequently





Jearson  
1974



2 mi. E Atlix, 1200 ft. March 24, 1974



supported by trees.

Very few reeds. just before docks I put out 18 big Shermans at good holes at the base of trees and cactus in a sea of Grindelia. also 16 large Shermans along a stone wall around an olive grove which was a sea of waist-high weeds. Anita put 20 traps along the gully in Grindelia latifolia.

Zonotrichia in flocks of a dozen, but heard song twice (maybe same individual). Crimson flycatcher, 2 size doves, burrowing owls, small hummer, heard Petronia, sparrow hawk, heard barn owl. There are said to be tinamous.

March 24

light warm, clear, dew on car but bushes dry. Only captures were 3 large Rattus rattus along the stone wall around the olive. a parous ♀ and breeding males.

Bones at 2 burrowing owl holes revealed abdomen, moose, Oryzomys?, Mus, and a quite small creature such as Phyllotis aeneus.

Other plants common are a small tobacco that they call tobacilla. The flowers of the legume tree are very sticky, arranged in spikes like buckeye but smaller, have a fuzzy yellow tongue with red design, stamens raised above it.

Set 40 small Shermans about 11 a.m. in the weedy ~~past~~ olive grove, some near the brook, others along wall about 30 yds from brook. a few in lush green grass, and some in or taller bamboo-grass.

March 25

2 mi. E. Atlix. Evening cloudy but clear before A.M. Dew on grass so that few Bidens stuck. much dew on car.



Traps: forgot to mention 20 museum specials baited with corn meal or locow set in Grindelia as yesterday's trap line, at base of cañon etc. Anita set 30 museum specials along wall in another olive grove, among weeds.

Caught nothing in the Grindelia; in my small Shermans near stream etc 3 mus and 1 young Rattus.

Anita caught 1  $\frac{2}{3}$ -grown Rattus, and 1 very small Calomys?, The latter in a weedy place. 80% of her snap traps were sprung.

Left about 8 and drove north to the Rio Tamar  
Rio Acari and up it to between Acari\* and <sup>(UMAROTE)</sup> Minas de Colre. a series of hitchhikers gave us assorted information. Two boys

\* a short way above Chocavento

said there was a rat outbreak in December but that they have all disappeared. They said a famous ratada occurred in 1960. There was no way to get rid of them except to catch one, put it in a cage, and then the people had a special mass (misa) and the rats all went away.

Camped in willows etc on the edge of a marshy place near the river. Lots of cotton fields, olive orchards, corn fields, bean fields etc irrigated nearby. Couldn't put out traps until 5:30 because so many birds, nohues, etc, but just before dark managed to get out between the two of us about 50 large Shermans, 5 small Shermans and a dozen snap traps. Some along mud walk + pepper trees, some long piles of <sup>dead</sup> cotton branches, some in dry or damp irrigation ditches.

Lots of birds around our camp in a meadow: mocking





birds, ants, flycatchers of several kinds, several rails (which vocalized frequently), and singing *Zenotrichia*. They often sing from perches on tops of 5-foot high cotton plants well out in the fields.

Food was found to be acari - a surprise, but poor alone acari.

March 26 4½ mi. E. acari, 700 ft. Night clear, no mosquitos. Dew.

Trope caught 4 *Mus* and 2 rats: 1 of them in a conspicuous hole in mudbank and 1 drowned in a trap that had been set in an irrigation ditch. They were so big and ratlike that only after much puzzling did I decide they were *Oryzomys*.

Only 2 weeks ago the river had risen many feet and covered much of the bottom below the fields.

Drove up the Valley in the morning to about 5 miles above Umanote and spent the day in a grove of willows near the river <sup>at 1200 ft</sup>. Pure desert on either side of the irrigated strip along the river, but *Tillandsia* high up on the ridges on either side of the valley. Hot. Then drove down the valley to 1 mi E La Planta de la Mina de Chire acari and set scores of traps along good stone walls at edges of drying old alfalfa, pepper trees etc, abandoned fields, and green tall grass near the river, night clear.

March 27

Trope held only 1 *Mus*, 1 *Phyllotis darwini*, and 1 small *Phyllotis* still in live trap. The *Zenotrichia* at 4½ mi E. acari were singing "Good morning chick", or occasionally the "chick" had a little roll. The *Zenotrichia* at La Planta had a slight roll.

Left for Bella Umanote thinking to go to





Pearson  
1974

Puerto Iruya but were lured onto a dirt road ~~to~~ NE up into the Cerros de Chocoverto, taking off a few miles north of Bella Union. After several miles we suddenly encountered a wide paved road (transverse to ours) with a center stripe, curve signs etc. Apparently it is completely abandoned and was converted to a now defunct and dismantled mine. We took the right branch past abandoned foundations and deteriorating roads and finally ended in a beautiful valley filled with 5 ft high clumps of columnar cactus (a forest), flowering tomatoes, assorted other flowers, lots of grass some still green, and dead stalks looking like Cuminum stalks as much as 9 ft tall. ~~We camped~~ no signs of grazing, no people for miles. The vegetation definitely on the dry side but still quite a few flowers.

We camped at 2400 ft. on the north-west side of the valley across from a mine-dump RR track that comes straight down the hill to a loading platform. A big mining excavation can be seen up above, <sup>one of our maps shows a Cerro Campana 1678m nearby,</sup> probably across the valley from us.

Set out a 10 x 10 grid with 10 yard spacing and set Shermans baited with cats, every station around the periphery and every other station on the middle lines. Two large Shermans followed by one small.

The Zonotrichia here are singing "Seed warren



Hearson  
1974



8  $\frac{1}{2}$  mi. NW Bella Union, 2400 ft. study area.  
March 27, 1974



cheer". Lots of roll on the last, almost separate notes.

Hummingbirds nesting.

Fog lowered onto Cerro Campana at about 4:30 and lifted next morning.

Forgot to mention Zonotrichia singing in the town of Acari and saw English sparrows there also.

March 28

No early bird chorus. Had been a little dew drip off of car but it was dry at daybreak and grass & weeds dry, but a tuft of dactyon fluff marking a trap was covered with dew drops. Foggy, but soon clearing.

Anta line of about 50 snap traps caught 2 mus and 1 big/pregnant female Phyllotis darwini. Lots of her traps sprung & empty.

Bird caught only:

#645 A8 Ph. dar ♀ vog. open, tail short

#646 H6 Mus ♂ ad.

#649 J2 Phyllotis dar ♂ ad.

Saw a big Oryzomys several times yesterday and this morning 50 ft. from the tent in a pile of stones & cactus. Another about 300 yds down the road. Set numerous big Shermans for them but they don't seem to go in them. While jacklighting, this second guy charged down his runway, bumped into the back end of a Sherman, thereby springing it, and escaped.

Filled in the rest of my grid with small Shermans, so now a trap at each station except the three where mice were caught last night. Anta added



the three rat traps to her line.

The cloud layer about 150 ft above us at 4:30 but had dissipated by 6 pm. Evening clear, much moon.

March 29

Morning overcast, dew on car but no drip, no moisture on my 1-g dacron sample, not enough dew on grass + weeds to wet pants.

Ant's line had <sup>5</sup> big *Oryzomys*, 1 *Mus*, and 3 *Phyllotis darwini*. My 5 big *Spermomys* around the *Oryz* down the road, 8 big *Spermomys* around ruined stone huts near the old workers' houses, and 2 near the *Oryz* at our tent caught 1 *Mus*.

On the grid:

(# 649) report H2 Ph. dar.

650 G3 Ph. dar? small ♀ infert.

652 B5 " " " ♀ veg-open, (prob-preg).

(645) report A9 " " " ♀ veg-open.

653 E9 Ph. dar. huge ♂

(646) report G10 *Mus*

Several of these *Phyllotomus* seem to have shorter tails, less fluffy fur than the *Ph. dar. leucatus* caught on Ant's line and in the Acari valley, and the huge ♂ is the biggest *darwini* I ever saw - if it is *darwini*. Will save them all on last night of trapping.

Skinned in A.M. Everybody, pregnant + adult. Why? would expect this to be the end of the breeding





season.

Hiked up to a greener - looking patch about 1500 ft above camp to set traps, but conditions not all that different, so set none. The grasses were greener, and a few flowers were blooming that we have not seen down here (a cucumber one, a large white morning-glory-like flower, a parasite *Eriosema*?, etc., but ground dry dry. Got horn owl pellets under the bottom of the mine transect stops.

March 30

Just before getting after supper Anita saw 2 mice.

Night was mostly clear, dew on car but no drip.

Day all clear. Temp at noon breezy sunny 25°.

Grid as follows:

654 I9 Ph.d. small ad. ♀ vag. open.

(653) I7 Huge Ph.d.

(646) = 655 E7 mus

(645) B7 Ph.d.

656 A6 mus ad ♂

658 I6 Big long-tailed fluffy Ph.d. ♂

(650) H4 smallish ♀

(649) I3 Ph.d. small

659 E3 small breeding ♂, short tail not hairy

660 H1 mus ad ♂

662 E2 Big fluffy darwinii, vag. open, tail broke.

Caught nothing in the big shermans at the



two Oryzomys dens. Our test Oryz. near the tent seems to eat oatmeal, watermelon, apple, cheese, + bacon - but won't go into traps to get them.

Before lunch we built a scrap roofing corral and tore apart the rocks + cacti near the tent - nada.

Then another one where we disturbed an Oryz from his shredded Ephedra nest under a cactus branch. He ran more central, then to another clump, and we finally caught him by hand along the tin corral.

a similar attempt with another mouse, after several mad scrambles, netted a big ♂ Phyllotis.

6 cows at lunch moved up the valley onto the grid.

March 31

night + morning clear, dew on car. Antas live traps had 2 Ph. darwini, snap traps ba 3 darwini and 2 amicius. She found a mummy of what looks like akodon. My grid as follows:

Day 4 - E8 - wet Oryzomys, probably caught during day yesterday and cooked in sun; still alive but groggy.

X0 - another Oryzomys, location not recorded.

I9 - Ph. amicius ♂ 5126 breeding ♂

E9 - " " " 5127 " "

I8 - " " " 5128 " "

(649) J5 " " " 5129 " "

(645) D10 " " ♀ 5130 preg.

(650) G4 " " ♀ 5131 lact.



Pearson  
1974

	A8	Ph. amicus	♂	breeding	5132
	A9	"	"	"	5133
(655-646)	G10	mus	♂	breeding	5134
(653)	H6	Ph. darwini	large ♂	"	5135
	G1	"	"	♂ breeding	5136
(662)	C1	"	"	♀ preg	5137
(658)	H2	"	"	♂ breeding	5138

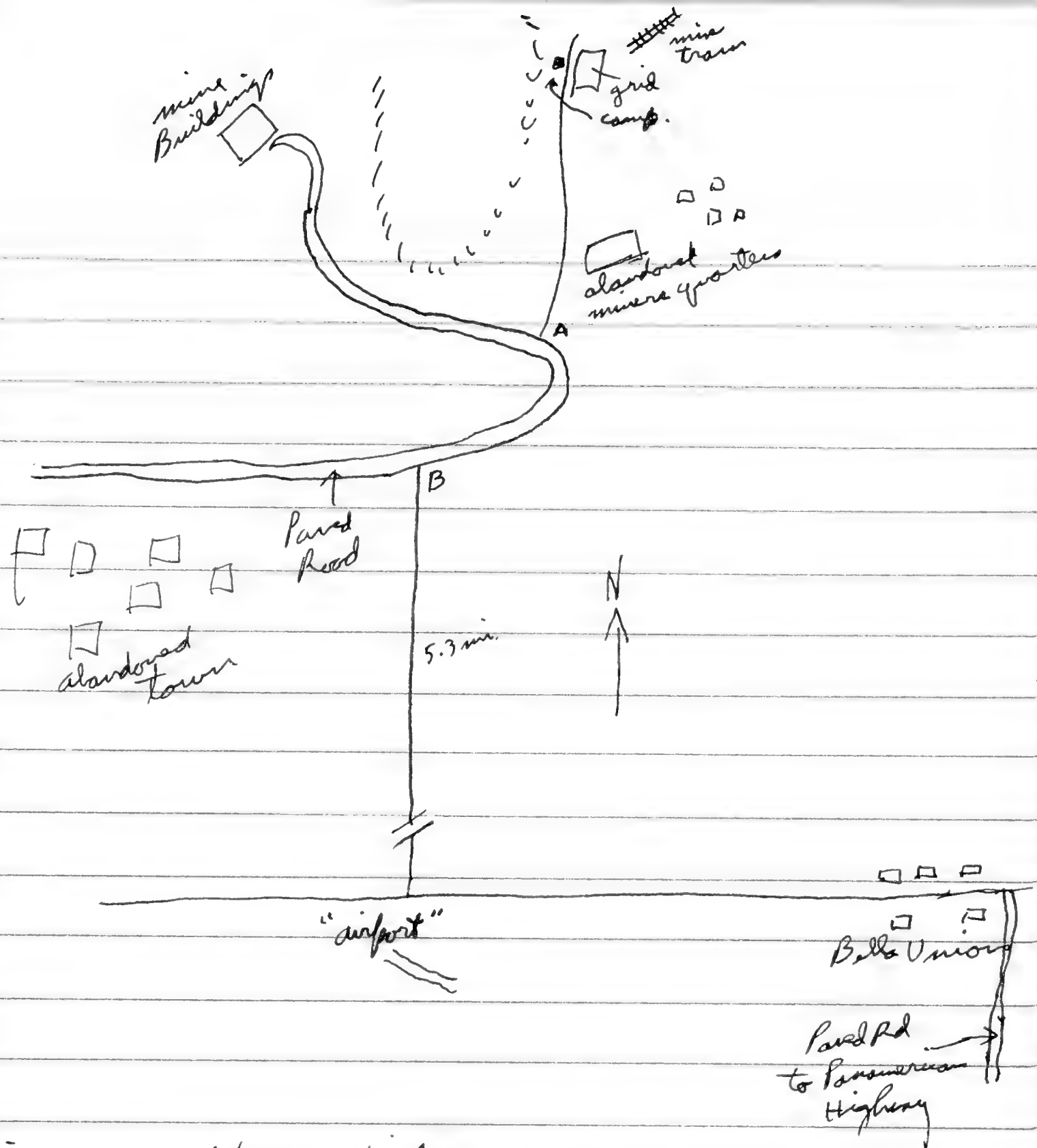
The amicus tended to be caught at the grassier sites along rows A, B + C (check this), and the darwini in the more open, rocky bottom of the dry wash, but infrequently at the bottoms of cacti clumps that looked good for Oryzomys, as though Oryz was keeping them away from their choice-looking sites. Oryz was undoubtedly abundant on the grid but didn't enter traps until the 4<sup>th</sup> night, and none entered live traps elsewhere despite abundant opportunity.

Left after lunch. Saw fox at close range on the way out to Bella Union. It was the size of a house cat and probably hunting lizards which were very abundant in the flat campo but not around camp or on the grid.

Some triangulation on the Hoja de Ruta map of the auto club suggests that this campsite is  $8\frac{1}{2}$  mi. VNW of Bella Union and was known as the Mina de Hierro area. It closed down about 6 years ago. We drove through the abandoned headquarters village, with school, basketball court etc, and saw nobody. There was an Inca watchman at



Pearson  
1974



Distances: camp to A = 1.1 miles

A to B = 1.4 miles, B to airport = 5.3 mi.

airport to center of Bella Union = 4.6 mi.

the plant ("mine building above), stopped at a chacra in Bella Union and talked with an intelligent 20-yr. resident. He said last year was a wet year with great vegetation in the loma - and with a plague of rats at his chacra, where they destroyed crops etc. He said the ones they killed were all males. He thinks they breed up in the loma and invade from there. He is separated from loma by about 2 miles of absolute desert. He gets irrigation water from the acari valley. He says





the vegetation this year is fairly good, and that it rained in December. rains are quite unpredictable, however. He said usually they get their rain at the time of Sierra storms (Dec-Feb), not in synchrony with the coastal fogs.

The flora in the two valleys was quite different. Ours had a forest of casti, but none in the valley to the west where the mine buildings were. No trees in our valley and very few elsewhere. In spite of the 6 cows, grazing insect in our valley was negligible - practically the only place in Peru about which I can say that. Lots of grasses. Ground cover 50 to 100%. The tomatoes were most spectacular, then an orange flowered spreading "columbine" in large clumps and white ever-lasting. Tallest casti were 14 ft; the usual, 5 to 6 ft. They have 6, 7, 8, or 11 flutes, all with 3" diam blossoms white or crimson. Also a smaller tubular cactus with deep red blossoms and a smallish one with almost-spherical joints.

Valley was loaded with large raptors - butors and bigger; a falcon slightly larger than sparrow hawk, sparrow hawk; 3 or more *Speotyto* (eating insects only), 2 or more barn owls every night; a capped myiarchid; hummingbirds nesting, wrens abundant, *Phrygilus alaudinus* surging in air and feeding young; *Eufelia* plus a "mourning dove", a small almost-black flycatcher, mocking birds, a flock of brown icterids, *Zonotrichia* singing with lots of trill on last note. Parakeets, Swifts. many others. But no early morning bird chorus.



Pearson  
1974

March 31 (Sat) This is the "best" loma I have seen. It is not wet & druffy like some of those in central Peru in August<sup>±</sup>, it does not have the trees of Atriquipa and probably not as reliable moisture, but Atriquipa is so heavily grazed that ~~only~~ the northern *Brudelia* dominates. Bella Unión has much grass, a variety of flowers, cactus. I doubt that it has the big yellow lilies of Papá Leon etc. What saves it from the fate of Atriquipa is the absence of a stream. When a stream is present, people use it for irrigation which (a) keeps the human population high and (b) keeps the livestock high. When the loma is all eaten out, they take the ~~cattle~~ <sup>cattle</sup>, burros, horses, sheep, and goats a handful of alfalfa or weeds (alternatives/prey) to keep them going until a spring of grass appears in the loma. Then they take their herds up into the hills for the day.

Drove south and camped after dark at Atico. When passing Atriquipa I noticed two nice valleys just north, with lots of trees. The more northerly of the two had a road going up into it, apparently into the trees.

April 1

Drove most of day and arrived Waqueya 4:30 p.m. Supper, then up the Cajone-Taquepala road to a campsite, no place to get off the road until <sup>about</sup> 12,700 ft (Altitude had said 1500 ft at Waqueya), so we parked at side of road (very broad road). Yubee river. Night clear.

April 2

Morning clear. Frost on sleeping bag. Vegetation a mixture of tola, weeds (mini-pod) and cactus. Drove up to a benchmark (4048 m) to spend day <sup>(Quinta)</sup> but sirocco



hit aintor, so back down to a meadow at about  
→ 12,000 ft ± just off of the Cuzco-Tegucigalpa road. Spent  
the day there, set traps among boulder talus below the  
road: bushes, tola, weeds, some grass but not bunchgrass  
(4048 m wasatola + ichu). In spite of the abundance of  
*Lepidophyllum* + *Secois* bushes, the absence of bunchgrass  
and abundance of mimosa and other such little annuals  
makes this seem lower than altiplano. The dominant  
animal is thousands of woolly caterpillars crawling everywhere.

April 3 Night cloudy + warmer; morning all cloudy. We had about  
50 museum specials and 24 small shermans out and caught  
3 *Bolomys berlandieri*, 1 *Ph. magister*, and 12 *Ph. darwini*.  
Most of the *darwini* had truncated tails. Everybody pregnant.

Left about noon and grand up the hill, following signs  
to Lugo, but horrible road and no other cars on it. Eventually  
got to Lago Sucke.

altimeter check: at benchmark 4048 m altimeter said 12,800 ft.  
a benchmark at Lago Sucke said 14,680 ft.  
said 14,140.

Here: altimeter is reading 550 ft. too low.

When we made camp altimeter read 13,380 = 13,930  
Came past our old two camps, then on a new road,  
helpfully toward Santa Rosa but queer side, saw no  
tinamous, no vicuñas, no rheas. Camped along a  
stream and *Baccharis*, *Lepidophyllum*, *Festuca*,  
and yareta: Cloudy all day.

April 4 Morning mostly clear, afternoon all cloudy. Spent  
the day dissecting owl pellets and manufacturing,



RBCs. Had 17 small *Shermans* out all day, but caught nothing. Saw a ♀ *Oreoscoptes* standing on the ground at ~~Voltrab~~ *Voltrab* ~~black~~ *black*. Just sniffs, but heard no trawns. Quite sterile area. We are along a stream at 13,900 ft. between Lago Siche and Lago Linsota.

April 5 night overcast, clearing toward morning. Frost on windshield but not on car. Morning partly cloudy, afternoon cloudy.

Drove about 10 miles, then discovered from roadscaper that we were on the Condorine Road, so turned around and headed for Santa Rosa. Turned back the Caacochara road just over the divide from Santa Rosa and drove back to our old Uscacha camp. Road just as awful as ever. The Caacochara Valley was full of alpacas and sheep. Hundreds of them, and a thatched hut. Decided not to stay there, so drove back almost to the turn off the main road and camped in a wilderness valley. About 5 mi E of Lago Linsota, 15,250 ft. Put out about 65 large + small *Shermans* baited with rolled oats, along stone walls. Saw *Andisorex boliviensis*. Saw one band of *Vicunas* between here and Caacochara: one male with a band of 10 that included at least 2 young.

Started to snow - but just before dark, and off and on all night. Full moon was bright through the clouds, so the mice did snow out moonlight. Poor part of trapping at 1 AM, but nothing. Warm + still.





April 6

Morning cloudy, about 2" of snow on ground, and occasional other flurries of grains until about 11 a.m. Sun & scattered clouds after about 2 p.m., then evening cold after sunset.

My trapline above camp had 2 dead baby *Phyllotis* hardly big enough to be out of the nest, and 2 old adults, alive, but one of them later cooked in the sun. The traps around the corral across the valley were untouched. Moved them to the unoccupied huts, another corral, some new traps in another rock outcrops up the road, and expanded my line in the rocks above camp. Ants has about 20 in rocks above camp. Total about 90.

Saw several tinamous, heard them in A.M. but not evening, saw two, *Andisomys* behavior near camp looking to like watermelon (he was badly startled at first sniff, then gradually accepted it). Several others went near camp. A *Troglodytes* grabbed a piece of watermelon flipped to him, chewed it, then spat it out.

Evening cold & clear. all snow gone in valley except in shade of car. Just about dark a fireball dropped about 2", another flurry or two during the night.

April 7

2" of snow in A.M., cloudy. My traps at the unoccupied huts had 1 *Chinchilla* and 1 *Andisomys sublineatus*, neither actually in a house, a small corral live nothing. a small rocky tongue nothing. at 1 a.m. the original



rock wall here had 1 adult Ph. darwini, and ~~at 7 a.m.~~  
~~it had~~ 2 baby Ph.-d., at 7 a.m., another adult and  
two more babies.

Put out ~~reset~~ more traps for darwini.

Sots of Tuanotus singing and trache in the snow.  
Have seen duas twice, no trias.

Glacial polish on bed rock, striations aiming WSW.  
a few sprinkles of hail during day, scattered clouds in  
afternoon, more cloudy than sunny.

April 8

Night was clear for a time, heavy frost, then haze and  
clouds, skin of ice. Traps in middle of night caught 2 more  
young darwini and a Ph. boliviensis, in the morning <sup>2</sup> more  
Ph. boliviensis and a big toad.

yesterday afternoon a herd of several hundred llamas,  
alpacas, and sheep grazed up the valley and moved  
into the unoccupied huts & camped across the valley.  
The 4 men promptly found several of my traps, so I  
walked over to talk with them, and reset them.  
This morning the livestock moved into the valley again.  
With the 4 men came a horse, 3 donkeys, and 3 adult  
chickens (1 ♂ 2 ♀). Yesterday was the first day clear enough  
to see sunrise & sunset, and it appears that we are north  
of Lago Titicaca, something like 5-10 miles.

Sots of traps out for darwini, and (hr) of darkness  
before the men came off, but hauled during half of  
this dark period.

April 9

Have part of trapline at midnight: 1 adult  
Phyllotis - partly clear. Morning mostly clear,



two more adult *darwini* and two juveniles of less than 20g. Released them, as well as two others caught earlier.

Day mostly sunny until noon, then scattered clouds and occasional hail.

The shepherd across the valley came to see us on his <sup>or his people</sup> ~~enjoyment~~; Pedro García Nina. He calls this station Punta Perdida. He says the ~~sheep~~, alpacas belong to a sort of cooperative, the llamas and sheep are his. Every night the ~~haste~~ ~~goats~~ are herded into the vicinity of the corral but are not forced to enter it. In the morning, however, they are confined in the corral for an hour or more - to prevent them from grazing too far away during the day. #2 is 28g or so, born here.

This morning saw and heard two male vicuñas having a fight - close up the valley on the east side. Saw footprints, but haven't seen them yet. Have seen many <sup>hummingbirds</sup> ~~hummingbirds~~ twice, on the ground or perching in low talls or on rocks. They have no *Chuguiro*s for many miles. Big *Sialia*s are out when it is warm. Have crossed the marsh many times, with its myriad ponds & puddles & reeds but have seen no frogs or toads there (nor heard them). Caught 1 *Bufo* in a trap, and today saw a little yellow-footed one walking about. Saw 1 condor and 2 eagles soaring overhead this afternoon.



Season  
1974

Spent the day processing mouse traps.

Left out one trap line consisting of about 40 large shermans and some small shermans.

April 10

Almost no snow during night. Nothing in traps. The local shepherd, Pedro Sarcia, calls this location Punta Lechida, mail address Mazocruz. He asked if he could have a live trap so he could get mouse or rat blood to drink (for medicinal purposes).

Left about 10 am, drove to Santa Rosa and Mazocruz (where there was no gasoline), then to the acequia camp above Tarata. Saw one band of vicuñas at an agric. school place between Mazocruz and Yata, and a "herd" of 4? rheas on Lampa de Capazo. Stopped and took photo at our lizard camp near Challapalca. Tola camp and yareta camp looked same as 1971, Queñua and acequia camps definitely greener. Cantua not blooming, so no Patagona and few other hummers.

April 11

Dried + packed. Stopped to visit in Tarata, then to Tarma where we arrived in mid-afternoon. Rock camp about same as in 1971, but some green anisak at lower altitude than in 1971.

Unlike a month ago, the promenade on Avenida Bolívar in Tarma was full of English sparrows, and no no zeotrichias. A few patches of zeotrichia song elsewhere, but nothing like last month.





Pearson  
1974

"Peru"

Sept. 4

a letter from Manuel Plenge enclosing newspaper clippings dated August 24 notes a remarkable and widespread snowstorm from Iquitos to above Lima. The pass at Livino closed by snow, ditto the road from Lima to Juliaca, Iquitos airport closed for 5 days due to rain, fog, snow, hail & ice, snow down to Casapalca, Tarma blocked for 2 days, Cuzco -  $-20^{\circ}\text{C}$ , Arequipa -  $-7^{\circ}\text{C}$ , and a thunderstorm in Tacna.



Person  
1974

## Hastings Reservation

July 9

With Phil Meyers put out the Calhoun Traps at about 4 p.m. baited with peanut butter. Weather was drizzly and considerable rain had already fallen. Almost no mouse sign. Saw bobcat at bottom of meadow on School Hill. Chamise in bloom.

July 10

Drizzle in early part of evening, but clear after midnight, moon slightly past full. Ran traps at 7 a.m., grass + chaparral soaking wet. Saw bobcat in the trap-line meadow. See summary for catch.

Drove to Mission San Antonio in Plover in middle of day, returned at 4:30 p.m. Day sunny and cool.

	July 10		July 11		July 12
	am	pm	a.m.	p.m.	a.m.
Chaparral	1 neotoma 3 boylii 1 trusii 1 br. towhee 1 wren 1 wren tit	1 lizard tail (white tail)	4 pin. calif. 1 boylii 1 trusii 1 wren	1 wren 1 wren tit	3 pin. towhee 1 wren 1 wren tit
Meadow	1 muskrat 1 Reithro 4 manic.		2 manic 1 Reithro	1 muskrat	4 manic 2 Reithro
Oak.	1 boylii?		1 trusii	1 yg chick sparrow	

July 11

~~Chaparral~~ night clear + cold ( $<40^{\circ}$ ). Heavy dew. Ran traps at 7 a.m. ~~meadow~~ then visited Jimmy Bell's ranch. Reloated traps in P.M. Day clear + cool.

July 12

Night cold + clear. Picked up traps 6:30 a.m.



Hansen  
1974

Hastings Reservation, Monterey Co, Calif.

Sept. 1+2

To Hastings with Anita, Ali, and Betty Bolin. made wire baskets to replace the disintegrated plastic garbage cans and hung them on the same steel parts as the garbage cans. Then added plastic bags inside them. after hanging, 2 diameters measured on each of seven baskets varied from 18" to 20", average of 14 diameters on 7 baskets was 19.02 inches.

There are now 30 baskets (there were 30 plastic garbage cans previously). also, 8 basket sites were skipped because there were no oaks overhead; these are considered to be hypothetical baskets, hence 38 baskets of 19.02" diam. =  $59.7532 \text{ in}^2 \times 38 = 2,270.62 \text{ in}^2$  of sampling surface. I have ignored one site near the middle of the line where there should be a post, but isn't. There were no acorns overhead at this site.

Elsewhere on the reservation some of the oaks are dropping with acorns this year. along this trap line there are a few acorns, but not many. a few, alas, have already fallen, also.

Oct. 30

To Hastings with Dave Requery and Ken  
Emptied the acorn bags and got 32 nuts which weighed 45.6g. fresh or 30.3g after drying several weeks.



Pearson  
1974

## Hastings Reservation

Dec. 12 To Hastings with Patton. about 3 PM (overcast) set the oak and meadow lines and to set the chaparral line; museum specials and peanut butter. I saw only 3 good runways in the meadow (traps at one of them) and 2 runways in the oaks (traps at one of them - Evening ~~Scotch~~ ~~shot~~ mist + drizzly but cleared later at night.

Dec. 13 Ice on car. all day clear. Chaparral traps at 7:30 AM had 2 Reithro, 6 trui, 1 Pinus colif, 3 Dipos, and 1 Taricha. Oak line had 1 Reithro. meadow line 10 maniculatus and 1 Reithro. In PM chaparral line had 1 sage sparrow, 2 weaver tits, and 1 golden crown.

Saw 2 smallish Sceloporus.

Dec. 14 night clear, light frost. In AM chaparral line had 6 trui, 1 Reithro, 1 Pinus colif. Oak line had 2 microtus sic. meadow line had 5 maniculatus and 1 Reithro.

Picked up traps in morning, covering all of the trap lines and the paths to them from the tame house; about 2-3 gallons, some of them very fresh but mostly quite old, surely month old. Saw a bobcat on Haystack Hill out in the grass. Found a dead mole with head eaten off. all 3 species of Peromyscus seem to have acorns in stomachs.

The acorn "buckets" yesterday had about 5 more acorns in them. One of them had been everted by the wind - but still contained an acorn.

Chaparral traps in PM had 1 brown towhee. Found a mouse-eaten valley-oak acorn at station 24 in the chaparral, which is about as far in as you can get,





and a long way from any oak (probably >100 yds).

Dec. 15

night overcast. Chaparral held 4 Truei, 2 Reithro, 2 Pinus calif, 1 Perognathus. meadow held 3 Reithro, and 5 maniculatus. Oaks held 2 Reithro and 1 microtus.

Total catch for 3 nights:

<u>Chaparral</u>	<u>meadow</u>	<u>Oak Woodland</u>
16 <u>Truei</u>	20 <u>maniculatus</u>	3 <u>Reithro</u>
5 <u>Reithro</u>	5 <u>Reithro</u>	3 <u>microtus</u>
4 <u>Pinus calif</u>		
3 <u>Dipso</u>		
1 <u>Perognathus</u>		

Collected some acorns in the morning. Saw young mountain lion tracks at the new water tank above the Hastings Cabin.

The new collection of acorns consisted of 8 acorns, 5 of them small, and after 3 weeks of oven + air drying weighed 7.9g. This gives a total for the year of 40 acorns of dry weight 38.2g, which is by far the biggest harvest so far.



Pearson, O. P.

1975

catalogue

# 5178 - 5184

Journal

Tern

# 5177 - Calif



5176 1975

Hastings Reservation, Monterey Co., Calif.  
May 30, 1975

given to ~~spotorno~~  
5177 ♂ *Dipodomys*

chaparral line 75-26. To ~~spotorno~~  
277 x 150 x 47 x 21 87.3g.



Pearson  
1975

Catalog

Peru

3,500m.

3.2 km. NE Tarata, 11,500 ft., Dept. Tacna, Peru

Nov. 22, 1975

5178 ♂ *Phyllotis magister*

testis 10mm, SV 12mm  
277 x 144 x 32 x 27 62g.

5179 ♀ " *darwini*

testis 9, SV 21  
224 x 111 x 26 x 26 36g.

1 km E Challapalea, Dept. Puno, 4,300m  
4,000m

Nov. 24

5180 ♂ *Auliscomys sublimis*

144 x 44 x 21 x 20 - testes large

5181 ♂ *Bolomys berlepschi*

165 x 69 x 21 x 14 Testis 10mm

Pampa de Anconasa, 4,300 m., Dept. of Puno

Nov. 28

5182 ♀ *Auliscomys sublimis*

142 x 40 x 21 x 21 32g. no emb.

NOV

Nov. 29

5183 ♂ *Elgnodonta typhus*

test 8mm  
164 x 71 x 25 x 19 21g.

5184 *Ctenomys furvus*

294 x 84 x 43 x 7 360g





1975

Hastings Reservation

May 29 To Hastings with angel Spetorno. Arrived 3 PM, PDT sunny & warm. Oaks still green under oaks but dry or almost dry elsewhere. Set all 3 Calhoun lines. Adenostoma not quite in bloom. Is spreading outward (by growth of existing bushes, few seedlings), a few holes and runways along the meadow line but none really super. Griffin has been harvesting grass plots in this meadow and seeing numerous Microtus there. Davison, Griffin, and Keete all say lots of Peromyscus in houses. Oak line with a few interesting holes.

May 30 Night clear, light dew. Ran traps 5:30-8:00 PDT. Lots of trui & Californicus in chaparral, nothing in oaks, no Leithae or Microtus. Day sunny and warm. No birds in traps during the day (or mice). Picked up carnivore droppings on the chaparral line, a fair number but none fresh, mostly quite old but since December when I picked them up on previous census. No carnivore tracks on the road. Bradford arrived PM.

May 31 Night clear, trace dew. Ran traps 6-8 AM. See summary, especially Oak with Perognathus, trui, and Californicus. It seems to be a year of Lusius californicus. Still no Microtus. Have seen a kite both evenings. Day sunny and warm.

Picked up scats on rest of lines.

June 1 Night clear at first, then scattered local fog. Some dew. Ran traps 5:30 a.m. For summary see Sept p. Saw no carnivore tracks but heard 1 fox.



1975

May - June summary

<u>chaparral</u>			<u>meadow</u>			<u>oak</u>		
5/30	5/31	6/1	5/30	5/31	6/1	5/30	5/31	6/1

P. manic.			1	one	11	11		
P. truei				0	1	0	1	11
P. Calif.						0	1	
Diplo.	1							
Perognathus						0	1	
Sceloporus								1
Wren tit		11						
Horned lizard		1						
Cnemidophorus		1						

Total 5 manic, 30 truei, 19 californiens, 1 Diplo, 1 Perognathus



Season  
1975  
Peru

Quebrado de las Huéscar, east of San Bartola,  
Dept. of Lima, Peru

Nov. 15

Took a collector's route south and got off at the wara and walked back across the desert to our gecko site of the geckos. On the east side of the freeway about halfway between the Sta. Maria turnoff and the turnoff for our Quebrado there were about 8 or 10 large terns <sup>circling</sup> flying overhead, several of them carrying minnows and some of them dive-bombed me. Looked for nests but saw none.

The quebrado is quite dry, the pepper trees pretty scraggly, but some in bloom and some other dry-weather bushes blooming. Saw several hummers of 2 species: a large one with long curved bill and dark collar, and a very small greenish-brown one.

I don't think there are any new seed flows. Camped at our usual place about 3 or 4 miles up the valley. Some of the main Tillandsia in bloom, the Passiflora quite lavender. The big Tillandsia plants on the south side of the valley look rather dry with partially rolled leaves, but they are in full bloom. The spikes orange, as I had expected, but the <sup>petals</sup> flowers quite purple. While I strolled through, the tiny hummer was feeding on them (the Passiflora)\* and also a <sup>big</sup> black fuzzy bee-fly. These flies are also working on a bush in bloom in the dry wash.

\* stripe on side of head, white band on tip of tail feathers

Concerning the wasp-gecko food-chain, camp was near some blooming bushes in the dry wash, and flies,



Peavon  
1975

and moths were abundant, plus two or more of the big orange-brown wasps. These walked over the flowering branches, but seemed more interested in me than in anything else. Certainly were not hunting insects. Walked for several hours looking for wasps digging holes, or for geckos, but found none.

Cloudy up until noon, then clear sun until about 3, then partly cloudy.

Saw 1 set of mouse tracks, 1/2 pr. of Mus mus, numerous fox and Burhinus tracks.

About 8 p.m. (moon almost full, partly cloudy) jack-lighted for about 1 hr but saw only 1 small scorpion (up on the ~~soft~~ <sup>soft</sup> mud).

Nov. 16 Morning cloudy. No dew. Hiked out to between San Bartolo and Punta Negra where I flagged a micro bus. Saw no lizards, one sparrow hawk.

Nov. 21 Left <sup>Tarma</sup> ~~Tarma~~ <sup>with Tony Guscombe</sup> about noon and drove to Tarata. Stopped to see Sofia, gasoline, then up to the acacia camp where I put out 22 large Sherman's baited with rolled oats. Some Cantua flowering and some Grussetia, but everything pretty dry. Moon slightly past full.

3.2 km NE Tarata, 3,500 m.

Nov. 22 Night partly cloudy, water buckets with 1/2 inch ice. Thermometer at daybreak 32°F. Traps held 3 Phyllotis darwini and 1 Pt. major, a good informant yesterday (hitch-hiking army) pointed out bat caves near Tarata.





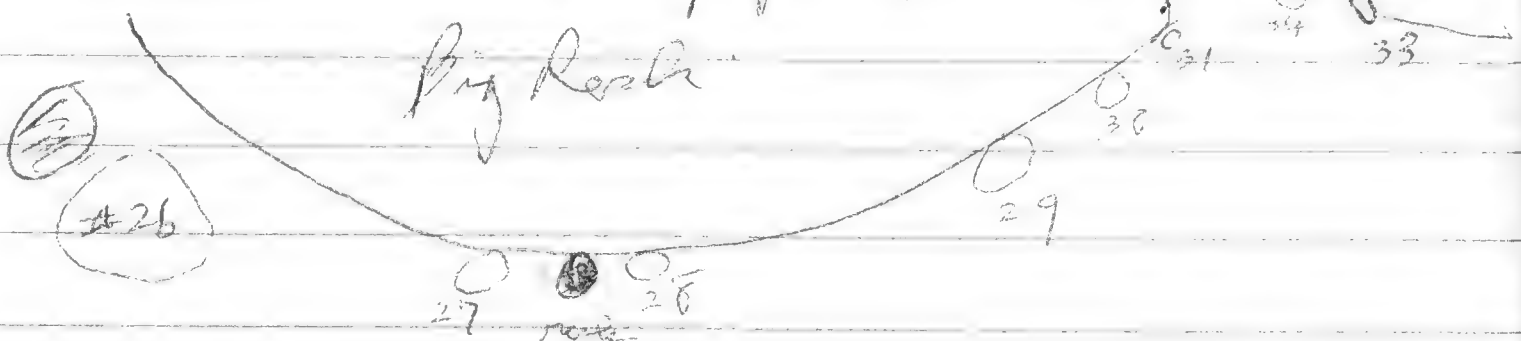
Pearson  
1975

# Quemophylla

cc. 22  
(cont.)

Found Carex seedling yards/plants

Pig Rock



#34 16 rosettes 60 x 55 m.m.

#33 17 rosettes, 72 x 50

#32 A  $\pm$  60 " 60 x 75

#32 B  $\pm$  70 " 120 x 50

#31 photo 6 rosettes 40 x 25

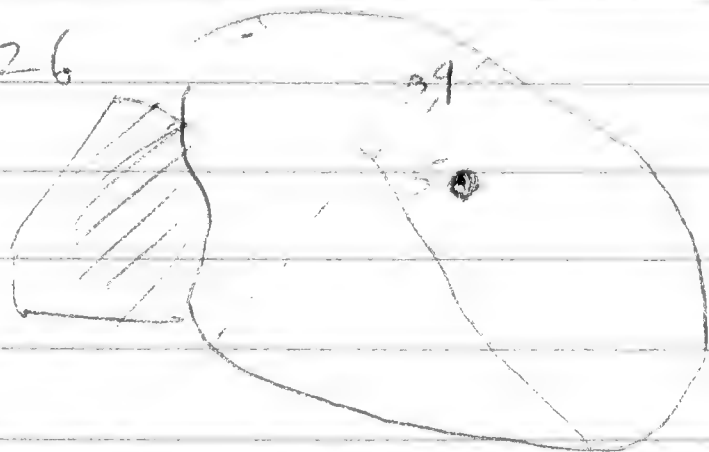
#30 14 rosettes 40 x 30

#29  $\pm$  60 " 100 x 80

#28 15 rosettes 60 x 35

#27  $\pm$  70 " 100 x 90

#26



21-25 not found, presumably dead, I'm 80%  
sure I was looking under the proper canopy

Spillb Gulley, above Quemophylla

37, 1.57

#80 no seeds, no roots, blossoms on double (w)

1.31, 1.60

70 late blossoms or early seeds on double

1.12, 1.28

77 blossoms double + roots

area  
vert (long)

1.37 1.57

1.31 1.60

1.12 1.28

1.12



Beam  
1975

yareta measurements

Nov. 23	Comments	Top	uphill	At. Down		
52	late blossoms + seeds, all sides. No dead	19	24	23	20	22
53	new + late blossoms, all aspects south (rt)					
	22 <del>23</del> 23 24 24, dead					
54	Blossoms all sides	22	26 in down 1"	23	19	20
56 <del>54</del>	sparse flowers + late flowers	22 $\frac{1}{2}$	24	23	19	19
55 <del>53</del>	sparse flowers	22	25 mud	23	21	21
57	sparse flowers	24	27 mud	26	22	17
58	sparse flowers left.	20	19	24	21	17
59	F. young	20	24	23	19	-
60	sparse flowers down at left	22	27 edge of dead	23	21	21
			edge of dead			



Reardon  
1975

Nov. 23 Yaveta camp.

nails

number comments

Top

uphill

pt.

Down  
~~left~~

left.

40 Tag on end of trail  
early seeds on  
left side  
on top

-

-

-

-

21

41 06, some at ends  
tag on 5-10m

21

21

22

21

21

49 Tag on end 2m  
42 Blowing all ends

-

23

24

21

-

43 small patch on uphill  
side of road

-

-

-

26

-

44 Tag on end 2m  
early seeds on left

21

22

24  
24

22

18

45 Tag on end 12m  
early seeds on left

-

-

-

-

-

46 small patch on uphill  
side of road, 10m from  
on road

21

47 Tag on end 6-8

19 1/2

23 1/2

19

14

48 Tag on end  
early seeds on left

-

-

-

-

-

42 42 no seeds, early seeds  
on left

50 Blowing all ends  
early seeds

20

19

51 Tag on end  
Blowing all ends

17

23 1/2  
23

24

21

17



Season  
1975

# 10

Blossom.

uphill side  $8\frac{1}{2}$  in. down hill  $4\frac{1}{2}$

uphill arc 93, massive 54



# 19

after blossom

uphill nail 10 mm. arc 1.31 x 52

# 20

Blossom all sides, One nail near top 7 mm, arc <sup>down</sup> 1.05 x <sup>uphill</sup> 1.00

this is an isolated clump, all heavily etched a little  
red near ground up hill





Pearson  
1975

north Gulley, above Quenuaplaya. Could recognize the yareta beds from the panorama/photos, both here and in South Gulley, but none of them had nails in them. Either Carol mis-remembered or somebody stole all the nails. Tony Suscombe caught a cold *Siobennia* under rocks.

Drove up the hill to yareta camp, which looks just the same. Dry. Put out 16 large Sherman near camp, and looked over the yareta line. Breeze up canyon until 6 p.m., then calm.

nov. 23 Yareta camp, 13 km NE Toca 4,500 m. Night slightly hazy, but frost on car. Clear at sunrise, but cloudy bright beginning about 7:30. Nothing in traps.

Measured Carol's yareta. Couldn't find many of the ones marked with paint.

Heard one batch of *Timanotis* at daybreak. Lots of traffic on the road, day and night, much of it Bolivian.

Headed for Chollafalca about 10:30, arrived at the lizard camp about 2 p.m. Windy, some clouds.

Saw 1 large male lizard out about 3 p.m., and another under a rock at 4:30 too warm to catch. Also a female out at about 4:30.

Put out about 20 museum specials at 4:30, baited with rolled oats, around a couple of mini-corrals and across the *Festuca*-*Lepidophyllum*.

nov. 24 AM cloudy, no frost, but plenty ice on buckets. Gradually became more sunny, but always some clouds about. Hunted lizards for about 6 hrs. Saw one out as early as 7:30, but she went down when I tried to reuse



Pearson  
1975

her and apparently stayed down until an hour or so later  
I dug her up. Dug up a big mole that had spotted yesterday,  
and moved another ♂ and another ♀. Saw about 3 other adult  
♀♀ and one adult ♂ who got away. Also saw one Sceloporus  
atracatus along the stream. No toads or frogs in spite  
of turning over lots of rocks.

Snuff traps line caught 3 Ambystoma sublineatum and  
1 Ambystoma talpoideum.

Still sunny at 2 pm although clouds to the east.

Put 11 big Shermans with rolled oats in good rocky  
level along stream (other side, downstream). Left out 22  
snuff traps. Evening hazy, brightest stars visible.

Nov. 25 morning fairly heavy clouds, 26° at 5:30 AM, no frost.  
Sun then hazy-bright with shadows.

Nothing in Shermans downstream, 2 more sublineatum  
in snuff traps. Picked all of them up.

Ran a photo-pycnophyllum vs rock experiment with big moles  
#1 and #2.

Saw 2 adult ♀ bigods while picking up traps at 9 AM. Tony  
found 2 1-inch toads under a boulder at 8:00. Cold cold toads.  
They were under a large oval boulder and quite deep, at  
least 1 foot deep where the soil was damp. Small black  
toadpoles in a large puddle off of stream.

Nov. 25

Singed #1 has most at tips of tail, and also near base

started photographing at 7:00

two grey polar bears in photo, 2 smaller <sup>one</sup> white.

Photo 6:57

7:03 just. Thin uniform whispery no wind

7:08 " " " " no wind

7:16 " " " " "

7:22 " " " " "

7:29 " " " " "

7:45 " " " " "

about as hot as they can get with this sun

8:00 " brighter but still hazy

8:07 " " " " "

respiration seems to correspond to body temp  
#2 always slower.

8:15 with big sun dog (as earlier),

8:20 no photo but sun high place  
clock has stopped

8:25 last photo

all same exposure

Reason  
1975

photo - color - Pyeno vs. rock.  
mar. 25  
blue x with red filter.

Thermocouple surface temp: 1/3 sector west								
Time:	air Bot	Shot Volts	Rock Volts	Pyeno Volts	Rock $\Delta V$	Pyeno $\Delta V$	Black common $T_r^\circ$	$T_p^\circ$
6:34	1.2	170	400	500	230	330	4.5°	6.2°
6:47	3.0	100	350	500	250	400	6.5°	9.5°
7:00	5.5	120	310	480	190	360	8.0°	11.0°
7:17	5.7	140	500	620	360	480	11.2°	13.7°
7:30	6.8	120	420	490	300	370	11.3°	12.5°
7:45	6.8	120	505	620	385	500	12.8°	15°
7:59	8.4	150	740	780	590	630	18.4°	19.1°
8:06	10.5	140	750	780	610	640	20.7°	21.2°
8:16	9.8	120	710	780	590	660	19.8°	21.0°
8:23	11.5	110	580	500	470	390	19.0°	19.7°

air		Pyeno		Rock	
Time	3 in	Legend #1 (Schultze)	Legend #2 (Schultze rect)		
5.0	6:57	10.5°	10.5°		
5.4	7:09	15.3	12.8	-2.5°	
5.6	7:14				
5.7	7:16				
6.0	7:23	19.2	15.0	-4.2°	
6.8	7:30				
6.8	7:32	21.0	17.0	-4.0°	
6.8	7:45	21.6	15.0	-6.6°	
8.4	8:02	28.6	22.4	-6.2	
10.5	8:08	27.4	23.4	-4.0	
9.8	8:16	29.4	25.5	-3.9	
8:20	sunbed / phase 2				
8:25	29.4 #2 on pyro				
	28.4 #1 on rock				
	diff 1°				



Reamon  
1975

Summary of photo - Pyro vs rock: Sun was always filtered, with halo, but strong enough for shadows. Stopwatch ran down sometime before 820. Lizards behaved well, little activity. The surface temps were taken with thermocouple under several layers (3+4) of masking tape with a wisp of cotton between 2 layers. Some of these surface readings were drifting, hence not too reliable. Lizard #1 weighed 20 g, lizard #2 weighed 16 g. The rock lizard #2 ran  $3.9^{\circ}$  to  $6.6^{\circ}$  cooler than the Pyro lizard #1 when switched, at the end, ~~the~~ #1 after 5 minutes on the rock was  $1^{\circ}$  cooler.

### Calibration of thermometers

~~Temp~~ ~~Water~~ ~~JS~~ ~~OT~~

per 20 clicks JW1 -  $39.2^{\circ}$   
 $38.6$  6.6, 6.5, 6.6, 6.6 ~~same~~ same per 20 clicks

no go JW2 -

per 20 clicks OP1 -  $37.5$  4.7, 4.6, 4.6, 4.5.

JW1  $32.5$  11.4, 11.0, 10.8, 10.8, 10.6, 10.7  
~~OT~~  $32.0$

OP1  $32.0$  6.2, 6.1, 5.9, 5.9, 5.8, 5.8, 5.9  
 $31.9$

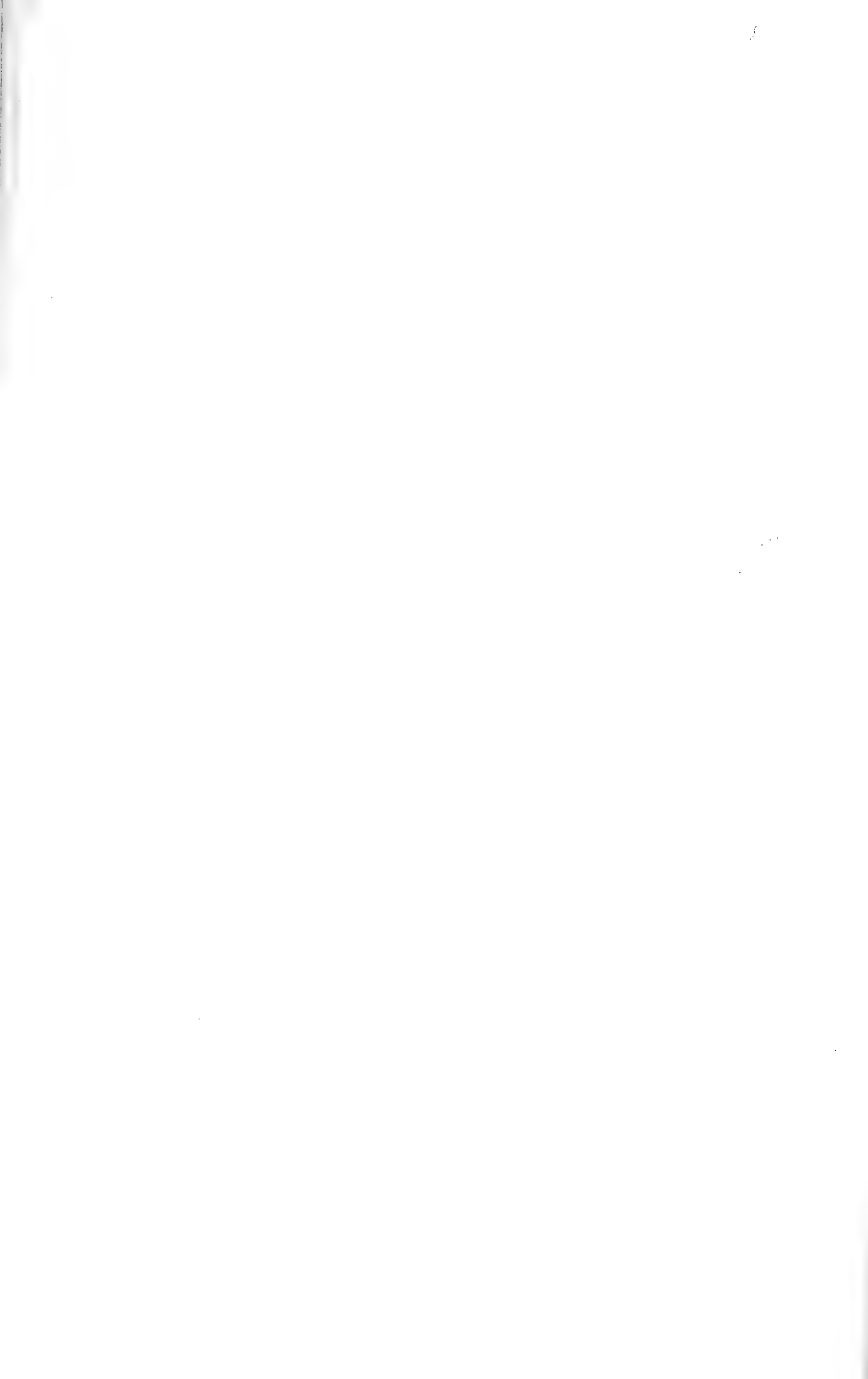
JW1  $22.8$  23.5, 23.4, 23.4  
 $23.0$

OP1  $23.0$  9.4, 9.2, 9.1, 9.0, 9.0, 9.0  
 $22.7$

per 10 clicks JW1  $16.8^{\circ}$  21.3, 21.2, 21.1, 21.1,  
 $17.0$   
 $17.0$

20 clicks OP1 12.2, 12.1, 12.1.

When I went back after lunch to re-run the photo experiment, the sun had moved, so as to put the area in shadow. Soldered thermometers and calibrated them, but had to wait for colder weather because the river water at 1012 pm was up to  $16^{\circ}$ . Hunted lizards in cloudy-sunny afternoon, but saw only females or juvs (but saw 1 baby). Sky at least  $2/3$  clouds all day.





Reeson  
1975

at 4 P. we put out about 18 museum specials on the same  
line as the live traps yesterday \*  
not much afternoon wind.

Continuation of Calibration

	Temp.°	climber	Basalifer	10 or 20 clabs
JW1	5.7° doesn't work			
OPI	20 clabs 5.5° 5.7°	21.4, 22.0, 22.0, 21.9.		
JW1	no go			
OPI	10.0° 10.0°	17.5, 17.2, 17.1, 17.0, 17.1		
JW1	no go			
OPI	12.6 13.5	15.4, 15.0, 15.2, 15.2,		
JW1	15.2° 15.0	27.3, 26.9, 26.9, 27.0	10 clabs	
OPI		14.4, 13.6, 13.4, 13.4.	20 clabs	

Nov. 26 morning clear all over. minimum and temp at 5 AM 13°. no frost.  
morning almost all clear, a few clouds. Afternoon windy  
and increasing clouds, but seemed to be sunny over camp  
until at least 2:30 (noon). Temp reached  $22\frac{1}{2}^{\circ}$  at 1:18, and the  
wind was over 18° for hours. Tony caught more lizards, and I  
did "experiments".

Did a repeat of yesterday's color & temp + rock & pycno, only  
with telemetered lizards #2 & #3. (#1 died from too much ether,  
so we used ice for the other 2. Results: Beautiful. The pycno  
lizard warmed up faster <sup>to 35.8°</sup>, the rock lizard never could make it  
above 30°. (I had kept the rock shaded until ready to start.  
The rock lizard promptly warmed up to its save temperature as  
the pycno lizard when put onto Pycnophyllum.

Nov. 26. Zircon 2 & 3  
 Zircon 2 is over 100%  
~~later~~ should be  
 made until  
 start

Second half of roll of Plus X

Photo 7:46 with red filter.  
 7:54 no stop watch

8:02

8:08

8:15

8:32

8:35

8:40 last

8:57 photo of half - silver

9:19 photo of normal + silver

Pearson  
1975

Photo nov. 26 Pyrene vs rock

1/3, collector washed  
fracture

Surface  
temp

Time	air deg	short vort	Rock Vels	Pyrene Volts	Rock AV	Rocktemp	Pyrene AV	Pyrene Temp
8:50	11.8°	160	780	820	<del>22.3</del>	22.3°		23°
8:55	11.5°	250	460	720		14.3°		19.3°
8:06	11.5	220	540	810		16.5°		21.3°
	12.4	210	505	770		16.9° ↓		21.8° ↑
8:25	12.4	200	720	720		20.9°		21.9
8:38	13.0	330	750	730		19.7°		

Taken  
✓

Taken  
✓

air	Time	Surf	20 counts Pyrene Signal 2	20 counts Rock Signal 3	
	7:43	light	50.8 then	70	
11.5°	7:48			15.6° 16.0 11.4°	
	7:52		24.8 (10)	14.4 (20)	13.8°
11.5°	7:53	light	20.0 (10)	13.0 (20)	16°
11.5°	7:57		11.6 (10)	12.0	17.4°
12.0°	7:59		18.2 (20)	11.0 (20)	19°
12.0	8:02		15.8 28°	10.6	19.7°
11.5	8:07	light	11.4 31.5°	9.9	20.8
12.0°	8:10		10.3 32.5	9.0	22.6°
12.0°	8:14	light	8.8 34°	8.4	24°
12.5	8:18		8.3 34.7	8.0	25°
12.4	8:23	"	7.5 = 35.8°	7.6	26.5
12.8	8:33		8.0 35.2°	7.2	27.9°
	8:36		7.8 35.4°	6.4 = 30°	
13.0	8:41		7.50 35.8°	6.5	29.7°

17 yrs north  
telemetry



Pearson  
1975

cont. Tide meter SW 1 Tide meter SW 2

wood Rock lizard number 3 photo Pygma at 8:42

airtemp	Time	Pygma #2 chick	Pygma #3 chick	17 g with tadpole	sun
14.2°	8:47	7.1 = 36.6°	5.8	36.8°	a few whisp
	8:50				larger whisp
	8:51	7.4 35.9	5.1	34.8°	
	8:52	7.5 35.8	5.0	35.1	
	8:54	7.3 36.2	4.8	36.0	
	8:55		4.8	36.0	
<hr/> <div>8:56 <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">painted back half silver</span></div> <hr/>					
	8:57	7.2 36.3	4.9	36.8	photo
	8:59		4.8	36.0	
	9:01		4.6	37.4°	sun bright
	9:03	6.8 = 37°	4.6	37.4	
	9:04	6.4 37.8°	4.7	37.0	← sprayed all
	9:06	6.4 37.8	4.5	38.0	
	9:07		4.7	37.0	sun bright
	9:08	6.2 38°	4.6	37.4	
	9:10	6.2 38	4.4	38.2	
	9:11		4.7	37.0	← sprayed all bottom
16.4	9:13	6.2 mostly open 38°	4.7	37.0	
16.4°	9:15	6.4 37.8°	4.6	37.4	
	9:17	6.7 37.3	4.7	37.0	
	9:19	photo of normal + silver			

air 16.4 short 205 v 670 = Pygma (= 24.0°)



Reason  
1975

Nov. 26 spray eff. on *pycnothyllum*

4 females, about same size. Sprayed and put out 10:13 AM, bright sun started out over *Pycnothyllum*

	<u>control</u>	<u>all silver</u>	<u>all black</u>	<u>silver bottom</u>	
may not all have been at same temp at start					air
10:19	35	31	37.4	34.4	17°
10:24	35.4	32.6	37.0	35.5	
10:28	34.8	33.2	37.2	35.4	16 <sup>10</sup> / <sub>2</sub>
10:36 moved to cold rock (covered until near					
10:38	31.2	29.5	30.5	28.2 (snapped)	with sleeping bag
10:41	cloudy				
10:45	24.4	24.6	25.3	still cloudy	
10:49	23.0	22.8	24.1	cloudy, bright	
10:57	21.0	20.5	23.0	cloudy, bright in	air 16.4°
11:02	21.6	21.2	22.8	cloudy, bright in	shadow
11:08	rock surface: 120	centered 200	rock	on-off shadows	air 16.4°
11:09	24.8	23.2	26.0	but all cloudy bright	
11:15	26.0	24.0	27.2		
11:16	moved to <i>Pycnothyllum</i>			sun brighter	
11:23	35.4	32.0	37.0	light	
11:28	35.5	33.2	36.4	cloudy bright	comfortable as to
					on rock





Reamon  
1975

Exp. re. dead. onto Pycnophylus &  
at 12:53. 2x yesterday for weights. Same Pair.

Nov. 26

Red #1

Exp #2 with SW1

12:55	18.4° (2hullthine)	20.9 <sup>24.2°</sup> (20 + 4.2)	sun
12:57		15.3 28.2°	sun some wind
12:59	24.3°	11.7 31.5°	sun "
1:01		9.3 33.5°	sun "
1:03	28.2	8.3 34.8°	sun "
1:05		8.1 35.0°	" "
1:07	32.0	7.7 35.5	air 20.5° "
1:10		7.8 35.5	" "
1:12	35.6	7.7 <sup>35.5</sup> not parting	air 21° " "
1:15	36.8	7.3 <sup>=36.0°</sup> "	" "
1:18	37.0	7.7 <sup>35.5</sup> "	air 22.5° " "
1:21	36.4	7.6 <sup>35.6</sup> "	difficult windy
<del>1:23</del>	<del>36.4</del>	hasn't moved the whole time	
	same orientation as line one		" "
1:24	36.0	8.7 33.5°	air 20.8° " "
1:26	36.4	8.7 33.5°	" "

Black + silver film cans in sun + wind as above.

	<u>Silver</u>	<u>Black</u>	
1:38	30.5°	33°	
1:42	30.5	31.4	air 17.5
1:45	28.5	33.4	
1:52	30.0	35.5	air 18° running windy



Pearson  
1975

Nov. 26  
(cont.)

The rock lizard was then sprayed <sup>topside only</sup> (back half) with silver = no diff from control lizard. Then sprayed all over (topside only) = no obvious diff. Then sprayed bottom all over = slightly cooler (less than  $\frac{1}{2}$  degree).

Then chose 4 adult females of about same size and staked them out in bright sun on *Pycnophyllum*. Their equilibrium temperatures were in this order from hottest to coldest: black, normal + belly silver, silver all over + under. Range 4 to 5°.

The above four were then moved to a cold rock covered with sleeping bag. During cloudy-bright they were consistently black, normal, normal left, silver coolest (silver belly escaped). The difference never exceeded 3°. When moved back to *Pycnophyllum* they sorted out the same, with diff 4°.

Then compared dead #1 with live #2 (yesterday's pair) staked out on *Pycno* in ~~the~~ wind and hot sun. The live one reached 36° then dropped off a little. The dead one reached 37°. Good comparison because the live one lay motionless the whole time, so the position of the dead one matched well. The live one did not overheat (hot sun + *Pycno* and wind air up to 22½° and did not keep his mouth open).

Natural selection having the skin color of lizards for thermoreg. purposes doesn't seem to have improved more than a degree or two C° over black or silver!

Then ran black and silver film canisters in wind and hot sun. Small hole on shady side covered with masking tape, the Schmitts then slid through ~~the~~ a small hole in the tape. Tight fit. The black can ran about 5° warmer - and same temp. as a lizard!!



Reamon  
1975

Nov. 27 Thermocouple down lizard holes: 6:05 AM

air	short V.	alt V	
-1°	205	295	= -0.5°
0.8	250*	400	= 2.5°
2.5°	210	270	= 2.5°
3.4	195	265	= 3.6°

\* maybe didn't short out -

deafened. 6:35. skinned ventrally,  
matched pair, deep body temp 10°. weight 10g. skin patch used.  
warm-up of Black, normal + silver on Pygma

		Black	normal	silver
6:51	sun	8°	5°	4.5°
6:57	sun	13.2°	12.3°	19.3 (20) 7.9°
6:59	"			18.5 (20) 8.6°
7:01	"	18.5°	14.5°	17.5 9.6°
7:03	"			16.3 11.0°
7:05	"	21.0	29.3 (20) 12.5°	<del>15.1</del> 12.5°
7:07	"		40 17.5°	<del>15.1</del>
7:09	"	24.5°	36.6 18½°	13.8 14.5°
7:11	air 10°		29.6 20½°	13.4 15.1°
7:15	sun	23.5°	25.2 22.2°	11.0 19.0°
7:16	Pygma insert 120 short air 10° Pygma 640v			6.1 = 18.5°
7:18			22.3 23.3°	10.3 20.0°

air 7.8 in bet, short V 140 Pygma 800v = 19.0°

7:21	sun, well breeze	25.0°	20.5 248°	9.3 22.0°
7:24	sun		16.7 27.3°	8.6 23.8°
7:26	sun	28.5°	14.8 (see 289° / 20 ch)	8.1 25.0°



Pearson  
1975

Black    normal    silver

7:30	sun		13.4 (use) 29.7°	7.4 max 26.9°
7:33	"	29.8°	12.3 30.5°	7.1 28.0°
7:35	"		11.5 31.6	7.0 28.1°
7:40	"	32.0°	10.5 32.4	6.9 28.3°
7:42	Pyro air bot 10.4° 170V Pyro 770V. = (20.4°)			
7:47	sun	34.1°	9.1 33.9°	6.2 31.0°
7:52	sun	air in bot 13.5°	short V 100 Pyro V 500 = (19.5°)	
7:54	sun	35.8	8.9 34.1°	5.9 31.5°

8:20 Hot-bill up ♂, 35.6°, decapitated. 8g.

Blackie, normal, & silver onto cold rock

		<u>Black</u>	<u>normal</u> #2	<u>silver</u> #5
8:35	sun	9.0°	8.8°	7.0°
8:39	sun	<del>7.5°</del>	15	16.9 <sup>10.3°</sup> (200V per 200V)
8:40	sun	15°	15°	
8:42	sun ?		23.5 <sup>16°</sup> (100V)	15.8 <sup>11.5°</sup> ?
	(15.8° bot)	80V short 200V rock ΔV=120 ΔT=(17°)		
8:46	sun	21.5°	17.3 (10) 19°	13.0 16°
8:50	sun		14.3 (10) 21°	11.3 18.5°
8:54	air bot 10.5 short V 165 rock V 400 = (13.8°)			
8:55	sun	22.2° deb	12.7 (10) 22°	9.5 21.7°
9:01	whispy clouds, but sun bright	26.5°	21.4 (20) 24°	8.3 22°
9:06	" " "		18.4 26°	7.6 26.3°
9:10	" " "	29.2°	16.6 27.5°	7.3 27.0°
	air 11.5°, air bot 12.2°	short V 140 rock V 690 = (21.4°)		
9:15			15.7 28°	6.7 29.3°

lots more like 10°





Pearson  
1975

		<u>Black</u>	<u>normal</u>	<u>Silver</u>
9:18	sunny, Very thin strata.	30.2°	<del>14.3</del>	
9:20			14.3 27.5°	6.5 29.9°
9:22	air 15.0°			
9:25	sun	31.4	13.4 29.7°	6.2 31.0°
9:27	hot air 15.5° about V 125 rock V 780 ΔV 655 ΔT = 11.2° = 26.7°			

The silver spray paint is <sup>PACTRA</sup> NAMEL Chrome Silver 511  
~~and~~ and Flat Black SFI

nov. 27 (cont.) morning was clear, temp. 14°, no frost. Sunny all morning except for a few whiffs. Nothing in the snaf-trap line either yesterday morning or today. Picked it up.

Spent the morning on lizard experiments. The warmups on pycno about same as yesterday with black-normal-silver sequence. When done on cold rocks they could not achieve as high a temp, even though sun was higher and presumably hotter. Sequence, however, was not the same.

after lunch broke camp and drove to a few miles beyond Copago looking for rheas, then to the Pueblo Anconarua where I presented a school photo to the teacher (one of two ~~other~~ <sup>the</sup> ~~other~~ in the photo). Then drove back to our coral cove of previous years. Very windy. Set traps 5-6. Still cold windy at 7:10.

nov. 28 Some mist for most of the night. minimum about 20°. morning clear. Trap line (a mixture of snaf + lots, 50+) caught only one sublimis, after 8 AM saw numerous tiny Pisodromus alticola but



Reamon  
1975

male  
Nov. 28 State-out at 8:30 on rock facing sur

A = normal ♂

8:11  
29.2 31.8

9:28 9:22  
~~32.8~~ ~~33.2~~ 33.0

B = dead ♂ (just killed with ether) 32.0 34.4

~~32.8~~ 33.8

C = normal (asaphid)

(D) = normal (pale than others)

29.2 28.5 pale

~~32.2~~ 29.2

E = blocking from yesterday <sup>added later</sup>

28.0 33.2

~~32.8~~ 31.0

shrubby cloude

spayed bottom silver  
at 8:25

air 10  
pot 140  
Bot V 130  
Rock 600  
620

21° rock surface

	<u>8:36</u>	<u>8:50</u>	<u>9:01</u>
A	35.6	33.5	36.6 normal
B dead	38.0	39.0	41.6 (dead today)
silver bottom D	32.8 <sup>spayed top 8:37</sup>	32.4 <sup>spayed</sup>	35.8 (silver)
E	36.5	32.4	

air 11.2°


19°  
80V bot  
800V neg

29°

9:20  
Botan ~~30.2~~ 22.4  
Bot V 12.0  
Rock V 47.0  
shrub 50° F



1 beam  
1975

Nov 28	Female stalkout 8:00 AM	8:48 <del>8:30</del>	8:15	8:57
		8:30		
(1) normal	31.0	33.8		35.0
(2) normal	30.6	33.0		35.8
(3) silver from earlier	28.5	31.8	called	30.0
(4) normal (called then at 9:05)	29.0	34.8		36.3
(5) normal				
(6) black from before	33.7	37.8	called	38.1

		9:07
(1)	37.2	
(2)	36.4	
(3)	33.8	
normal (4) and	37.4	
(6) black	42.2	

till 9:30  
all morning was sunny, only a few whistles.



Reamon  
1975

no multiformis.

afternoon clear warm + windy. Saw quince fig  
in an abandoned <sup>no</sup> tree area near the corral.

Pampa de Anconera

11/29 Seabent on pyroclastic at Pampa de Anconera  
melting  
#2 thermometer just 1  
thermometer off #1

Time	<del>Seabent</del> Sun	Silver	Normal	Silver
7:36	sun, wind	6.0°	4.8°	5.2°
7:43	" "		21.5(10) 16.7°	14.5(20) 13.7°
7:45	" "	23.8°	16.2	
7:46	" "		16.2(10) 19.7°	12.5(20) 16.5°
7:48	" "	27.2	22.4(20) 23.5°	11.7 18°
7:51	" "	28.2	19.1 25.4°	10.4 19.8°
		Bot air 12.4	Bot V 40	Pyro V <del>60</del> 200 = 24°
7:54	" "	31.8°	14.3 28.8°	9.3 22°
7:57	" "		11.8 29.7°	7.7 26°
8:00	" "	31.7°	10.0 33.0°	6.9 <del>28.4°</del>

insert 1 mm - Bot air 16° Bot V 110 Pyro V 680 = 25°

Seabent in Pyro 18°, 28°, 27°

shade temp 10°

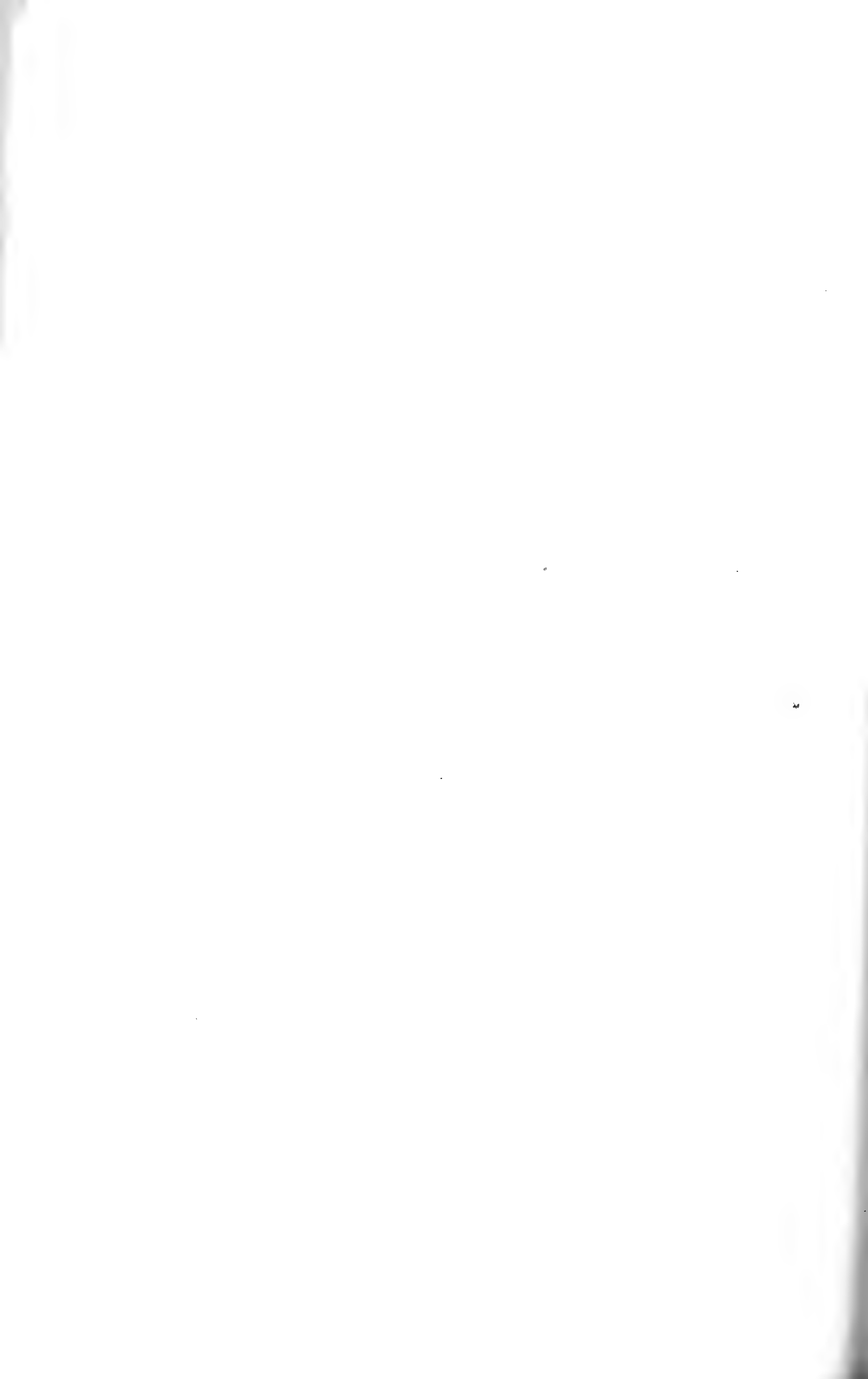
8:04	" "	33.4	8.9 34.0°	7.0 28.2°
8:08	" "	35.2	8.0 35.2°	6.6 29.5°

Seabent in Pyro ~~27.0°~~ 27.0°, 28.6°

8:11			7.6 36.5	6.5 29.8°
8:15		35.7	6.8 37.5	6.3 30°

Seabent Pyro 24° 25½°

air 12.0°





Pearson  
1975

	Siber	Normal	Siber Green
8:20 sun, no wind.	35.8°	6.5 37.9	5.6 32.8
8:24	36.5	5.6 38° 40±	5.2 34.7°
8:26 Pyro 27½, shade 9.6			
8:28	34.4	5.6. 38° 40±	5.1 35.0°
8:30		<sup>dropt</sup> Schubert 42°	
		Temp 6.3 = 31	

This was a good run, beasts quiet, sun bright with no clouds.

Night was clear, morning clear, no wind. Saw 100 lbs  
had 2 Eligmodontia and 4 Bolomys berlepschi. Set  
6 #0 steel traps for two - two and after about 3 hrs  
caught one big one.

Saw (and caught) Silvaceus multiformis.

Left about noon for Tacna.

Nov. 30

Spent night at Aequia camp (mountain scrub).  
Quite dry, a few Canthya blossoms. Potapora and a  
black hummer. Ice overnight. Left for Tacna and  
Tacna at 8 a.m.

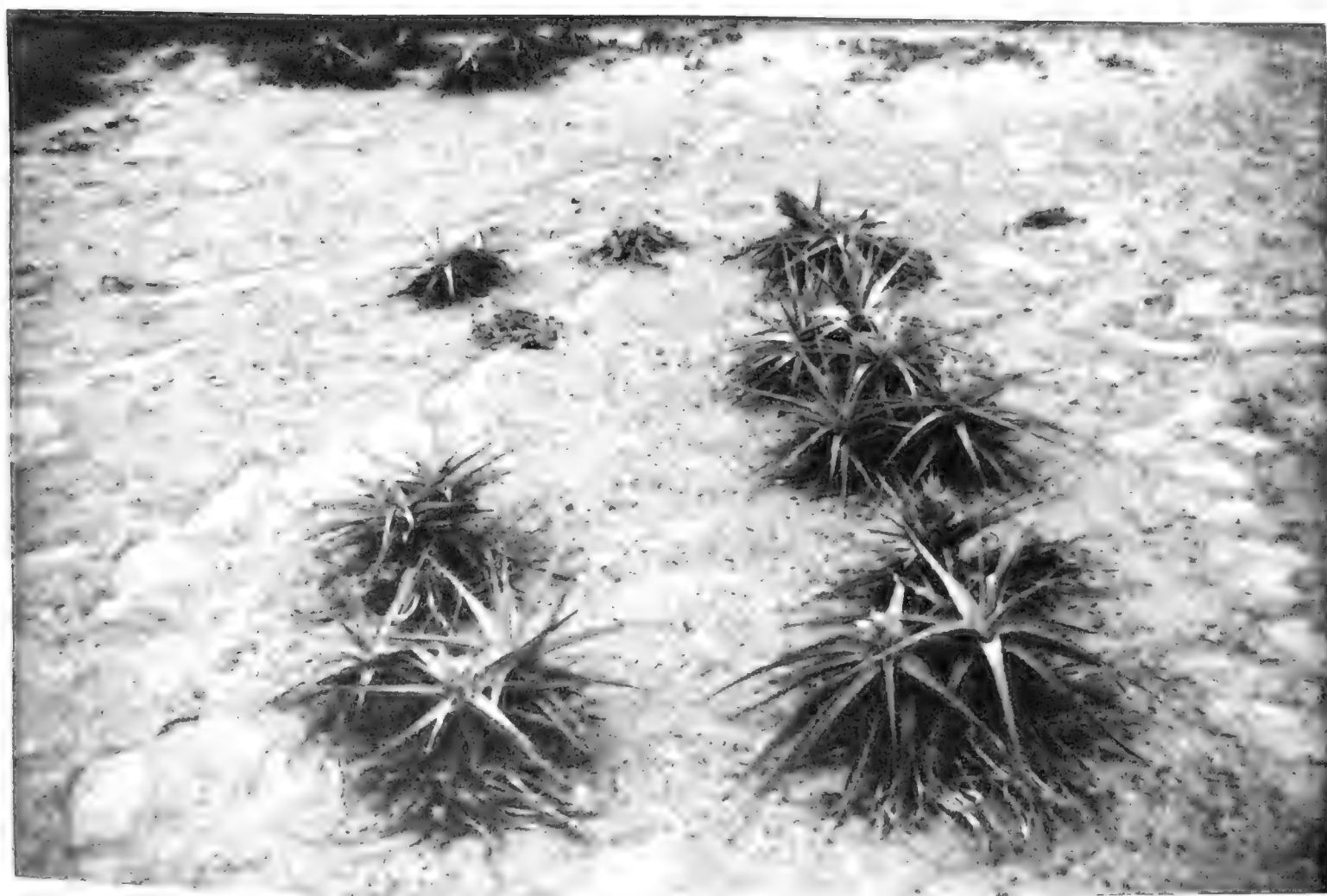
Dec. 1.

Mostly English Sparrows along the palm tree walk  
in Tacna, but numerous Zonotrichia in gardens  
etc., some singing.

Left for Lima 10 a.m. by way of Morro Sana.  
Saw no condors or eagles there, but did see one other  
and lots of birds. Vegetation very dry or non-existent,  
no green glaucous of cucumber vines, no animals.



Quercus agrifolia





July 7

Washburn

Dec 8, 1975





Peason  
1975

The Grindelia bushes have a few green branches with flowers, the other branches dry. Saw a few lizards, no small birds on grid. Surf lizards and a surf Cinclodes.

Dec. 2. Camped at the microwave place above Camaná.  
no vegetation left a few dead twigs and a few half-burned cactus joints. Lima about 9 p.m.  
Chilca

Dec. 8 wet bulb  $63^{\circ}$  -  $68^{\circ}$ . about noon.

Garden on the saddle:

"G" 00  
210g.  
about 6 rows dead

seeds "I" 620g +  
= I 80g. dead  
place  
blooms

00 = 700g

blooms 845g  
blooms

"H" 615g blooms  
about 20 rows dead 00

about 7 rows "F"  
9 dead  
150g 00

"E" → 00  
540g blooms

seeds "C"  
about 10 rows dead  
300g.

00 blooms 810g  
setting on "C" food

Honeycreepers common, feeding on purple Tillandsia blooms.





Peavon  
1975

Side - hill garden:  
"I" 820g

100 mm dead  
315g  
±15 mm

old  
seed/peds

415g

15 mm dead  
100 mm dead

460g

smaller head  
broken off  
due to a  
1/2" borer  
grub in stalk

"F"

320

flowers  
735g

flowers  
575g  
"D"

"V" = A  
tag  
seed/peds

190g  
12-15 mm dead  
120-180 mm dead

560g. rest of dead.

seed/peds "C"

470g

120-160 mm dead

Tails are between 1 and 2 mm before they disintegrate. about 75% of the *Tillandsia* area is dead *Tillandsia*. There must have been 3 to 6 hummers working on the study area. No noticeable disintegration yet of the dead leaves on the weighed plants. Found one gecko under a *Tillandsia* next to the saddle V. also saw one other lively lizard, on the area, I think. Saw curly bird droppings but no *Burhinus* tracks. mouse tracks just below the area. Rocks on tops of the hill have all been scraped away, and there are motorcycle tracks up to the top. Cheerful Charlie's B16 *Tillandsia* sign looks the same as before.



Pearson, O.P.

1976

catalogue

# 5185 — 5387

Argentina



Pearson  
1976

Argentina  
San Martin  
Parque ~~Mendoza~~, Mendoza City, Mendoza.  
Oct. 18, 1976

5185 ♂ Myotis chilensis 92 x 39 x 7 x 13 5.0g. caught Oct. 15, frozen.  
did visible in tail membrane. gift of Julia Contreras  
Testis 2 mm white  
access. 4 mm across.

5186 ♀ marwasa pusilla 193 x 103 x 12 x 21 15.0g. not preg. Caught by Julia Contreras  
under rocks. Killed 10/18  
2 mi. N Monte Coman, (Rio Diamante), Mendoza

Oct. 22

5187 ♀ Calomys Paron  
141 x 73 x 17 1/2 x 12 12g.

5188 ♀ Abodon Oct. 23  
10 km. N. Ovejuna, Prov. Mendoza, Argentina  
preg. 3R, 2 left  
184 x 79 x 23 1/2 x 19 30g

5189 ♀ Tadarida 10 km N. Gaspar Campos, Prov. Mendoza  
rt. horn 1 mm.  
left horn clavate, 3 mm diam  
99 x 36 x 8 x 17 8.1g

Skull only: pickup  
5190 armadillo Ovejuna, Prov. Mendoza, Argentina

Los Parlamentos, 60 km NNE Malargüe, 1170 M., Prov. Mendoza.

October 24, 1976

Skull only  
5191 ♀ Tadarida nipples not seen, vagina open. Rt. ov. large foll.  
fat. Right horn larger, not vis. preg. 97 x 36 x ear 18, brain 44 12.0 gm

Skull only  
5192 ♀ Tadarida nipple not seen, vagina open.  
Rt. horn slightly larger, not preg. No foll or CL seen 102 x 40 x ear 18 x FA 44 11.0 gm

Skull only  
5193 ♂ Tadarida Spid. not in tail. Testes 4 mm, white  
Spid. tiny, accessories tiny 100 x 38 x ear 17 x FA 42 10.0 gm

Skull only  
5194 ♂ Tadarida testis 5 mm, grayish. Spid. tiny, not in tail  
ventral "disc" 8 x 10 mm 98 x 38 x ear 18 x FA 44 10.1 gm

Skull only  
5195 ♂ Tadarida Ventral disc 6 x 7  
Testis 6 mm, grayish. Spid. tiny, not in tail. 101 x 36 x ear 19 x FA 43 10.5

5196 ♀ Tadarida nipples not seen, rt. ov. larger, no foll or CL  
rt. horn larger, 2 1/2 mm diam., foll. not preg. 98 x 38 x ear 17 x FA 44 11.0 gm



OPP.  
1976

Los Parlamentos, 60 km NNE Malargüe, 1170M, Prov. Mendoza

Oct. 24, 1976

testes 13mm, accessories long but narrow  
270 x 79 x 37 x 6 190 gm

5197 ♂ Ctenomys

Oct. 26, 1976

45 km SSE Chos Malal, Prov. Neuquén, Argentina

5198 ♂ Onychomys

800 M.

testis 7mm  
218 x 126 x 30 x 16 38 gm

5199 ♂ Eligmodontia

testis 7mm, accessories large 181 x 98 x 24 x 16 24 gm

5200 ♂ Zoosomys

testis 13mm, SV large  
280 x 150 x 29 x 26 79 gm

Oct. 29, 1976

790

Achalay!

4 km W San Carlos de Bariloche, Rio Negro, Prov. Neuquén, Argentina

5201 ♂ Ladainia

testis white, accessories 4x3

testis 4mm, FA  
108 x 39 x 8 x 18 45 13 gm

Oct. 30, 1976

no sperms in testes  
testes white, 2 1/2mm

5202 ♂ Myotis

epidid - tubes not visible, about 2mm.  
scrotal sacs visible in tail membrane

81 x 34 x 8 x 14.5 38 5.6 gm

5203 ♀ Myotis

vagina not open; nipples not seen.  
uterus small, white, both sides equal.  
ovaries equal; no follicles or CL visible

88 x 36 x 8 x 14 39 6.1 gm

Hotel Lago Moreno, 790M, Rio Negro, Prov. Neuquén, Argentina

5204 ♀ Myotis

vagina open, nipples not seen; lone roosting  
in garage in PM.  
uterus white, right horn slightly larger - 3 x 1.5mm.  
no follicles or CL seen

90 x 38 x 9 x 15 39 7.3 gm

[T<sub>10PM</sub>: 9.5; 8:30 AM, 10.5] Oct. 31, 1976

[below = in net overnight]

5205 ♀ Myotis

uterus small, white.  
rt horn slightly larger - 2 x 1.5mm  
vag. not open; nipple not found

ovaries no follicles or CL seen  
stomach full  
93 x 37 x 7 x 15 40 7.9 gm

5206 ♀ "

uterus small, white; rt horn larger 2.5 x 2

stomach full 89 x 37 x 8.5 x 15 38 7.6 gm

skull only

5207 ♀ "

nipples not found  
ov: no follicles or CL  
uterus tiny, white, equal: 1 x 2mm

stomach full  
— x 35 x 7 x 15 40 7.2 gm

[wt. of 3 full stomachs = 2.2 gm]

skull only

5208 ♀ "

vag. not open, nipple medium. ovaries pinkish, but no follicles or CL  
uterus vascular, rt horn larger - 3 x 2

stomach 1/2 full 87 x 37 x 10 x 15 38.5 6.8 gm

sk. only

5209 ♀ "

vag. not open, nipple medium; maybe preg.; no follicles or CL seen  
uterus vascular, rt horn larger: 3 x 2.5

stomach full 89 x 36 x 10 x 15 40 7.8 gm

sk. only

5210 ♀ "

vag. open, nipple not seen; ovaries - no follicles or CL.  
uterus - rt horn larger, almost spherical, 2.5mm  
vag. not open, nipple med; ovaries pink

stomach empty 90 x 34 x 9 x 13.5 40 7.3 gm

sk. only

5211 ♀ "

uterus - rt horn slightly larger - 2 x 1.5mm  
vag. open, nipple med.; ov. pink, no follicles or CL

stomach very full 93 x 37 x 9 x 13 40 8.7 gm

sk. only

5212 ♀ "

uterus vascular, rt horn larger - 2 x 2  
vag. not open, nipple not seen; ov. pink, no follicles or CL seen

stomach very full 90 x 36 x 9 x 14 38.5 7.9 gm

sk. only

5213 ♀ "

uterus vascular, rt. horn slightly larger - 2.5 x 2  
vag. not open, nipples not seen; ovaries pale, no clear follicles or CL.

stomach full 92 x 36 x 9 x 14.5 39 7.2 gm

sk. only

5214 ♀ "

uterus small, white, horns equal

stomach full 89 x 38 x 9 x 14 39 8.1 gm





OPP  
1976

Oct. 31, 1976 continued  
Hotel Lago Moreno, 790 M, Prov. Rio Negro, Argentina

sk. only	5215	♀	<u>Myotis</u>	veg. open, nipples not found; ovaries pink, no foll or CL	91 x 38 x 9 x 15 x 39	7.6g
				uterus tiny, horns equal; 1.5 x 1	stomach full	FA
parasite-mite	5216	♀	"	uterus vascular, rt horn much larger - 2.5 x 2.5 swollen	91 x 39 x 9 x 14 x 40	8.1g
				vagina open, nipple median	stomach very full	FA
				ovaries pinkish <del>spotted</del> , no clear follicles or CL.		
parasite flea	5217	♀	"	uterus white, rt. horn larger, 1.2 x 2. Ovary small, not pink. rt. ovary w/ brown stain at one end.	88 x 35 x 9 x 14 x 40	7.3g
				vagina not open, nipple median		FA
skull only	5218	♀	"	uterus tiny, rt horn slightly larger - 1 x 1	[killed next moon - 1 PM]	
				vagina not open, nipple not seen	[early into mat (9:30)]	
				ov. pink, not foll or CL seen	97 x 41 x 9 x 14	40.5 6.2

Nov. 1, 1976

Perito Moreno, 25 km ENE-S.C. de Bariloche, 800m, Prov. Rio Negro, Argentina

parasite	5219	♂	<u>Phyllotis</u>	testis 9, S.V. 8m	245 x 123 x 29 x 27	65g.
				ov. large follicles.		
	5220	♀	"	vagina open, not freq. vagina large + turgid	220 x 110 x 28 x 28	50g.
	5221	♂	<u>Akodon</u>	testis 11, S.V. very large	160 x 65 x 22 x 15	30g.
	5222	♀	"	large vag. not freq. large CL.	162 x 68 x 23 x 15	30g

Nov. 2, 1976

5 km SE  
Estancia Pilcaniyeu, Prov. Rio Negro, Argentina

	5223	♂	<u>Akodon</u> <u>xan</u>	testis 10, accessories large	146 x 56 x 19 x 14	23g
	5224	♀	<u>Ctenomys</u>	no emb. st. horn, 3 in left	210 x 62 x 32 x 7	136g.
				nipple small, much mammary tissue		
	5225	♀	<u>Akodon</u>	vag. open; freq - 3 late fetuses, left horn	158 x 60 x 22 x 16	44g
	5226	♀	<u>Phyllotis</u>	veg. closed.; uterus pink, not freq. vagina large	238 x 120 x 28 x 28	52g

Nov. 3, 1976

+skel.	5227	♂	<u>Histiotes</u>	epidid visible in tail	epidid 3mm, testes not visible	
				caught overnight in net (ca 11:30)	testis 5mm, straw colored	FA
				accessories smallish, 2.5mm.	113 x 47 x 9 x 26 x 44	11.8g

Nov. 4, 1976

38 km. S. Gobernador Costa  
Prov. Chubut, Argentina

	5228	♀	<u>Eligmodontia</u>	uterus pink, not immature, no emb.	163 x 81 x 23 x 16.5	20g
					testis 6mm; SV 10	
	5229	♂	"		160 x 78 x 22 x 16	17.5



Pearson  
1976

4 km W. Lago Blanco, Prov. Chubut, Argentina  
Nov. 5

5230	♀ <i>Phyllotis</i>	preg, 2 rt 5 left 238 x 108 x 29 x 27 72g testes 12 mm
5231	♂ <i>Akodon xantho.</i>	142 x 51 x 20 x 13 25.2 early preg. 1 rt 4 left; consid. mammary tissue
5232	♀ <i>Elgmodontia</i>	150 x 69 x 21 x 15 24

Nov. 6, 1976

~~25 km W~~  
Laguna Grande (Labeada) Prov. Santa Cruz, Argentina

5233	♀ <i>Histiotes</i>	on porch 190 air 7 PM - torpid nipple not hard, vagina w/ small opening left ov. larger, med follicles visible; rt horn uterine glandular - 3.5 mm diam, clear on rostrum in althi, torpid, 7 PM, air 19° 106 x 40 x 12 x 24 43 9.6g left horn much smaller
5234	♀ "	nipple med. large; vagina wide open, few around vagina goosey. 122 x 55 x 12 x 28 47 15.0g late embryo - rt horn - 18 mm CR - 1.2 gr. w/ placenta etc. FA - 7 mm rt ovary - large CL maybe; left ovary - nothing visible

Nov. 7, 1976

5235	♀ <i>Histiotes</i>	killed in net 1:30 AM. (not in net at 1) nipple large, no milk vagina open. some mammary tissue 111 x 43 x 11 x 28 46 17.4g 1 emb. - late preg. - some fingers: CR 24; wt concept - 2.8; FA 18 - rt horn nothing visible in ovaries eye, body, (mp), wing membranes. stomach 1/3 full
5236	♀ <i>Histiotes</i>	→ net there 11:45 caught net 1 AM, killed 8:30 AM. nipple large, no milk, vagina open 118 x 50 x 11 x 26 45 16.3g small anat mammary tissue, modest ant. subcut. fat, esp. dorsal base of tail Total fat perhaps .5g. Preg: rt horn, CR - 17 mm; rt ov. nothing, left ov. small follicles. Conceptus - 1.7g, FA - 10 mm stomach almost empty

5237	♀ <i>Histiotes</i>	caught net 1 AM; killed 9 AM nipple large, with milk. Vagina open much mammary tissue. fetus rt horn - 2.9g conceptus, CR 24 piglet wing etc, FA 15 rt ov. small follicles, left ov. med. follicles. 106 x 43 x 11 x 26 45 16g stomach empty. Small ant. subcut. fat, base of tail + base of ears
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5238	♀ <i>Histiotes</i>	caught as 5236 + 7, killed 10 AM. nipple large, no milk, vagina open, considerable mammary tissue rt ov. small follicles; left ov. med. follicles. 118 x 50 x 11 x 26 47.5 18.4g 1 emb, 2.8g. Conceptus, rt. horn. CR 23 mm; 13 mm FA moderate subcut. fat. - maybe 0.5g.
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caught and pickled Oct 22, 1976

2 mi N Monte Coman (Rio Diamante), Prov. Mendoza, Argentina

5239	<i>Onychomys longicaudus</i>	caught while we were following bull dogger working on road
5240	"	



O. Pearson  
1976

Monte Coma, (cont.)

5241 worm-snake

5242 snake

caught as 5239, 40.

*Leptotyphlops baruchramus*

Nov. 7, 1976

Laguna Grande (lakelets) Prov. Sta Cruz, Argentina

plus blood 5243

lizard *Tropidurus fitzingeri*

" 5244

"

"

" 5245

"

"

Nov. 8, 1976

Laguna Grande (Pueblo) Prov. Sta Cruz, Argentina

+ stomach 5246

♂ *Heterotis*

killed

epidid. barely visible in tail.

testis greyish, blackly, 5.5 mm.

FA.

in net about 11 PM. epidid. tubules not visible.

108 x 41 x 11 x 25 x 44.5

13.0g

slight amount yellow fat at base of tail

stomach 1/3 full; accessories - prostate 2.5 mm. yellow fat in abdominal cavity

testis white, 3.5; epidid. tub. not visible FA

5247

♂

"

In net at 5:15 AM. epidid. not visible in tail mem. 116 x 50 x 11 x 25.5

44

16.2g

appreciable subcut. fat at base of tail - white

stomach full - 1.8g. Prostates invisible. white fat in abdominal cavity

testis 6.5, yellowish, blackly

FA

5248

♂

"

In net at 5:15 AM. epidid. visible in tail

111 x 44 x 10 x 25

45

14.5g

epidid. small, tubules not visible. Stomach 1/2 full. yellowish fat in abdominal cavity

small amount subcut. fat, dorsal base of tail, slightly yellowish. Prostate 2 mm

5249

♀

"

large nipple, vagina open.

107 x 47 x 11 x 26

46.5

14.6g

no fat. no mammary tissue; stomach empty

Preg. ut. horn; ut. ov. small follicles, left ov. no follicles. Emb-CR 19 - Conceptus 2.3g

FA 12 mm

5250

♀

"

Nipples large, no milk. No fat

114 x 48 x 11 x 26

47

18.8g

stomach full - 1.5g. Preg. ut. horn; conceptus 2.6; CR 19, FA "

left ov. small follicles; ut. ov. small + med. follicles.

Nov. 10, 1976

52 km WSW El Calafate, Prov. Santa Cruz, Argentina

+ skeleton

5251

♂

*Nationis*

short-tailed

subcutaneous fat

epidid. tubules visible

testis 10 mm; SV 12

173 x 53 x 26 x 14

72g.

testis 7; SV 12

5252

♂

*Oryzomys*

223 x 107 x 28 x 15

51g

testis 8; SV 13

5253

♂

*Oryzomys*

230 x 116 x 30 x 16

66g.

5254

♀

*Akodon*

(brownish)

uterus vasc., conspicuous cl.

144 x 54 x 20 x 15

26g.

5255

♀

*Akodon*

(red-brown)

4 emb.

180 x 77 x 26 x 15

53g

5256

♂

*Akodon*

"

testis 13 mm

180 x 77 x 26 x 17

49g



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1976

Nov. 11, 1976

Estancia Alta Vista, 24 km SW El Calafate, M, Prov. Sta Cruz, Argentina

- 5257 ♀ Reithrodon uterus juv 155 x 63 x 30 x 20 40g.  
testis 10mm; SV 9  
5258 ♂ Akodon xantho. 120 x 47 x 20 x 14 16.5g

Nov. 15, 1976

Nueva Lubecka, 2300 ft., 60 km S José de San Martín, Chubut

- 5259 ♀ Foti skinned carcass  
5260 " " "  
5261 " " "

- 5262 ♂ Eligmodontia testis 7, SV 12 167 x 80 x 22 x 17 27g  
5263 ♀ " wide prime throughout Preg - 3 R, 1 L 159 x 75 x 22 x 15 20.5  
5264 ♂ Akodon xantho. testis 9mm 131 x 50 x 20 x 14 21.7

Nov. 16, 1976

4 km N Mañiten, 2000 ft., Prov. Chubut, Argentina

- 5265 ♂ Calomys ? caught in dry culvert under road. Wet grass rather damp. testes 5mm, white; SV 8 129 x 58 x 21 x 15 13.5g  
5266 ♀ Reithrodon green + uterus broad + vascular; vagina tough dry grass, weeds, along RR tracks. Holes bunch 190 x 82 x 33 x 25 45g.  
5267 ♂ Akodon wet grass, yucca, dandelions along road testes 11, SV 18 180 x 71 x 24 x 16 42g  
5268 ♀ Akodon uterus thick, vascular; vagina tough habitat as Reithrodon conspic. red cl. 163 x 65 x 25 x 15 34g  
5269 ♂ " " " testes 13mm 158 x 70 x 24 x 14 39g  
5270 ♂ Akodon xantho. bunch grass - thorn bush desert testes 10mm 132 x 50 x 19 x 15 18g  
5271 ♀ " xantho. uterus red, fleshy 151 x 64 x 21 x 16 21.7g

Leleque, 2000 ft., Prov. Chubut, Argentina

- 5272 ♀ Didactyles uterus: at horn larger - 3 x 2mm; ov. no follicles or CL. FA 47 119 x 51 x 10 x 26 14g.  
5273 ♀ " nipples large, milk expressible. Moderate fat 1 fetas - 16mm CR; considerable subcut. + visceral fat FA 115 x 48 x 10 x 28 46 15.2g  
5274 ♂ " nipples med., no milk, vag. barely open testes 2mm, not descended FA 94 x 36 x 9 x 23 39 8.6  
5275 ♀ " juv. - almost able to fly much subcut + visceral fat. Rt. at larger, brownish 120 x 47 x 11 x 27 49 13.5  
5276 ♀ " nipples small much subcut + visceral fat at horn larger, not brown 116 x 49 x 10 x 29 48 14.0  
nipples large, milk





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1976

Nov. 17, 1976

Leleque, 2000 ft., Prov. Chubut, Argentina

sk. only	5277	♀	Histio	{Emb: CR 20, FA 11; considerable subcut + visceral fat (netted) nipple med, no milk. Preg at horn	112 x 45 x 28.5 x 47	FA	16.5g
sk. only	5278	♀	Histio	↓ [caught <sup>in attic</sup> Nov 16 PM; killed AM Nov 17:] Rt horn slightly larger - 2x1 mm. ov large - left ov small follicle; rt ov small + med. FA nipple med, no milk. No fat	118 x 53 x 17 x 29.5	48	12.9g
sk. only	5279	♀	"	nipple not found. No fat. Uterine horns med, white, same size. Both ovaries small follicle.	112 x 50 x 11 x 26	45	11.5g
sk. only	5280	♀	"	Some fat. Rt horn large, brown pigmented. Left ov. small follicle; rt ov. none nipple large, milk. Prob. mother of 5281	118 x 50 x 10 x 28	48.5	13.0g
sk. only	5281	♂	"	juv. fuzzy grey. Young of 5280.	74 x 26 x 10 x 17	29	5.7
sk. only	5282	♂	"	[caught in net overnight; killed AM] considerable subcut + visceral fat. Accessories 2 mm, testes 5 mm, flabby. Epid black, <sup>much smaller than testis</sup> not swollen epid. visible in tail sheath, but not bulging	111 x 43 x 10 x 26	46	12.0g
sk. only	5283	♂	"	Testes 4.5 mm, straw colored. Epid. dark, much smaller than testis epid visible in tail men; not bulging	108 x 46 x 11 x 27.5	46.5	10.5g
	5284	♂	"	epid visible in tail men.; not bulging. No fat. Accessories 3 mm testis 5 mm, beige, flabby. Epid dark, smaller than testis	108 x 47 x 9 x 27	44	11.0g
	5285	♂	"	testis 3 mm; Accessories less than 1. No fat epid barely visible in tail men;	109 x 47 x 9 x 25.5	44.5	10.0g

Nov. 18, 1976

el

~~4000 ft.~~ Hoyo de ~~Leleque~~ <sup>Leleque</sup>, 400 ft., Prov. Chubut

5286	♀	Myotis	some subcut. + visceral fat vagina closed, nipple small-med, no milk preg at horn, swelling 10 mm. Emb CR 9 milk visible in ovary	90 x 37 x 8 x 14.5	FA 40	8.2g
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caught in wood in late afternoon; 8:30  
prepared next AM. 6:30 Nov. 19, 1976

sk. only	5287	♀	Myotis	tiny m, vagina not open uterus - horn same size, white - 1x2 ovaries - nothing visible	88 x 37 x 8 x 15	FA 38.5	6.5g
sk. only	5288	♀	"	large m, vag. not open, no milk preg. rt. horn. CR=12 mm	87 x 37 x 9 x 14.5	FA 39.	7.3g
sk. only	5289	♀	"	large m, no milk preg at horn, CR 16 mm	93 x 38 x 8 x 15	FA 38	7.5g
parasite	5290	♀	"	tiny m. uterine horns equal, 2x1, white	85 x 37 x 9 x 14	FA 39.5	6.8g
	5291	♀	"	med m, no milk preg at horn, 12 mm CR	90 x 41 x 9 x 15	FA 40	7.1g
	5292	♀	"	med m, no milk preg at horn 14 CR, FA 7	88 x 36 x 9 x 15	FA 38.5	7.5
	5293	♀	"	med m, no milk preg at horn, CR 14, FA 6.5	90 x 39 x 9 x 15	FA 40	7.7
10 AM	5294	♀	"	med m, preg at horn, CR 13	94 x 39 x 8 x 15	39	7.2g
parasite	5295	♀	"	med m. small, uterine horns equal, 2x1	93 x 37 x 9 x 16	39.5	6.4g
	5296	♀	"	med m, no milk preg at horn. CR 15 mm, FA 7.5	92 x 37 x 9 x 14.5	39.5	7.9g
	5297	♀	"	med m, no milk preg at horn. CR 13	93 x 36 x 9 x 15	40	7.8g



Nov. 19, 1976 (cont'd)  
El Hoyo, 400 ft, Prov. Chubut, Argentina

2 noon →	5298	♀ <i>Myotis</i>	preg at horn, fetus 14 CR. med m, no milk	88 x 36 x 9 x 15	FA 38	7.2g
	5299	♀ "	preg at horn, 13 CR med m, no milk	92 x 39 x 9 x 15	39	7.8
3 PM	5300	♀ "	begin with blood - perhaps abortion med m, at horn swollen 6 x 5 mm but no fetus	92 x 35 x 9 x 14	39	6.7
	5301	♀ "	both horns small & equal small - med m.	91 x 37 x 9 x 15	39	6.2
4 PM	5302	♀ "	rt. horn preg. about 12 mm CR (class determination) Ov. not saved.			7.6
	5303	♀ "	preg at horn; 11 mm CR. nipples med	93 x 39 x 9 x 15	FA 40	6.7
	5304	♀ "	preg, 12 mm CR. med. m.	90 x 39 x 10 x 14	40	7.4

Nov. 20, 1976  
La Catarata <sup>El Hoyo</sup> 1600 ft., Prov. Chubut, Argentina

5305	♂	<i>Notiomys</i>	testis 12	156 x 67 x 22 x 13		25g
5306	♂	<i>Oryzomys</i>	testis 7, SV 11 mm	203 x 115 x 25 x 15		26.0
5307	♀	<i>Oryzomys</i>	placental scars, no emb.	193 x 109 x 26 x 16		20.3g

Nov. 22

Estancia Alicura, 1800 ft., 60 km S <sup>E</sup> San Martin de los Andes, Prov. Mendoza

	5308	♂ <i>Myotis</i>	caught 1 AM, killed 1 AM epid visible in tail ment. stomach full accessories 3 mm. Some visceral fat.	testis white, 4 x 3 mm 90 x 41 x 8 x 14.5	FA 38	8.4
	5309	♂ "	some viscera fat epid. barely visible in tail; caught 1 AM; killed 7 AM stomach empty	testis 3.5 x 2, white; accessories 2 mm 92 x 40 x 9 x 15	37	6.4
	5310	♂ "	slight visceral fat nipple small - med.	caught 1 AM; killed 7 AM 90 x 40 x 9 x 15	37.5	6.5
	5311	♀ "	uterus small, horns equal, ov. no visible follics. caught 1 AM; killed 9:30	90 x 39 x 9 x 15	38	7.5
	5312	♀ "	uterus horns small, white, some size some present + visceral fat.	90 x 36 x 9 x 15	39	7.4
	5313	♂ "	epid <del>visible</del> visible in tail, but not bulging	testis 3 x 2, accessories 2 93 x 37 x 9 x 15	FA 39	6.8g
	5314	♂ <i>Reithrodon</i>	stomach contents green.	testis 12, SV 20. 222 x 90 x 34 x 26		80g
	5315	♀ "	vagina open - embryos: 3 R, 2 L	230 x 79 x 32 x 26		79g.
	5316	♀ <i>Akodon</i>	8 emb.: 4 R: 4 L: 27 mm CR. under bush along river	153 x 56 x 24 x 13		55g
	5317	♂ "	thorn bush in desert.	testis 7; SV 12 141 x 55 x 20 x 12		29g.
	5318	♀ <i>Elagmodontia</i>	parous, stomach full green material	174 x 90 x 23 x 19		30g
	5319	♀ <i>Ctenomys</i>	last; parous	225 x 65 x 34 x 7		152g



Pearson  
1976

Coral de Piedra

Nov. 23, 1976

71 km SE San Martin de los Andes, 1900 ft., Prov. Neuquen, Argentina

		+1 km SE San Martin de las Andes, 1900 ft., Prov. Neuquen, Argentina		FA	
shed in nest	10 PM				
0 AM	{	5320 ♀	<u>Myotis</u> preg, 12 mm CR, right horn med n., no milk. Slight subcut. fat	98 x 41 x 9 x 15	40 8.3g
put in		5321 ♀	" non preg. small n. no fat uteri horns small, one ring preg rt. horn: 11 mm CR. [Ovaries not saved]	94 x 39 x 9 x 14	40 6.3
		5322 ♀	" med n, no milk. No fat	86 x 35 x 9 x 14	40 7.2
		5323 ♀	" no fett, uteri small, both horns one ring tiny n.	92 x 39 x 9 x 14.5	38.5 6.7
water + 6 AM	{	5324 ♀	" much subcut. + visceral fat. stomach 1/3 full, rt. horn large n, no milk preg: 11 mm CR. [Ov. not saved]	92 x 38 x 9 x 15	40 10.3
		5325 ♂	<u>Tadarida</u> epidid. small, stomach fat. Some subcut fat, epid not visible in tail. Accessories 1 mm. testis 4 mm, white	104 x 37 x 9 x 19	47 12.5

Estancia Chacabuco, 62 km SE San Martin de los Andes, 2000 ft., Prov. Neuquen, Argentina

	5326 ♂	Myotis	considerable visceral fat. epid not visible in tail testis 3.5, accessories 1 mm	92 x 35 x 10 x 14	37	7.5	FA	
	5327 ♂	"	some subcut. + visceral fat epid barely visible testis 3 mm, white; access. 1 mm.	95 x 40 x 10 x 15	48	7.4		
skull only	5328 ♂	"	some subcut + visc. fat epid not visible in tail testis 3 mm, access 1 mm	83 x 37 x 9 x 15	37	6.3		
skull only	5329 ♂	"	slight subcut + visc. fat epid not visible testis 3 mm, white; access 1 mm	90 x 39 x 10 x 14	39	7.3		
skull only	5330 ♂	"	no fat. epid visible in tail testis 4 mm, white; access. 1.5 mm	93 x 38 x 9 x 13.5	39	6.8		
skull only	5331 ♂	"	moderate subcut + visc. fat epid barely visible; testis 2.5 mm, access. 1 mm	88 x 37 x 9 x 14	35.5	6.5		
skull only	5332 ♂	"	moderate subcut + visc. fat epid not visible; testis 3 x 2, access 1.5 mm	88 x 38 x 9 x 14.5	39	7.0		
skull only	5333 ♂	Tadarida	moderate subcut + visc. fat epid not visible; testis 3.5; access. 2 mm.	95 x 35 x 10 x 19	43	13g		

Nov. 24, 1976

Cracks in attic skull only	5334 ♂	Myotis	No fat. epid not visible. Testis white, 3 mm, access 1 mm	88 x 33 x 9 x 14.5	38	6.1g	FA	
at 10 PM	5335 ♂	"	No fat. epid barely visible testis 3 mm, access. 1 mm	83 x 34 x 9 x 14	36.5	6.0		
attic 7 AM	5336 ♀	"	large n, no milk; fetus: 1.4g - FA-9a; CR-17 pink	93 x 38 x 9 x 15	39	9.3		
	5337 ♀	"	much sub-cut + visc. fat: 0.7g CR-17 large n, no milk; preg. rt. horn: fetus	90 x 37 x 9 x 14.5	39.5	9.7		
	5338 ♀	"	uterus small, white, horns equal small n, some subcut fat + visc. fat	88 x 37 x 9 x 15	39	7.2		
	5339 ♀	"	uteri small, white + equal tiny n, modest amount subcut + visc fat	93 x 39 x 9 x [14]	39	7.1g		
	5340 ♀	"	preg. 15 mm CR; large n, no milk. Modest amt. subcut fat + visc fat	93 x 37 x 9 x 15	39	9.0		
	5341 ♀	"	much fat. fetus 18 mm CR large n, no milk	94 x 40 x 9 x 14.5	39.5	10.0g	FA	
	5342 ♀	"	moderate subcut + visceral fat. Preg - 11 mm CR. large n, no milk	89 x 37 x 9 x 16	39.5	7.9g		
skull only	5343 ♀	"	much fat, fetus 16 mm CR large n, no milk	89 x 37 x 9 x 14	38	9.1g		
skull only	5344 ♀	"	much fat; fetus 17 mm CR, pigmented mammae: 1.4g; FA 10 mm. large n, no milk	91 x 37 x 9 x 14	40.5	9.9g		



Nov. 24, 1976 (cont)

Hi in AM  
crack

Nov. 26, 1976

Bariloche 790 m, Prov. Rio Negro, Argentina

5350	♂	<u>Akodon</u> <sup>olivaceus bestus</sup> lact., not freq.	164 × 70 × 23 × 14	30.1g
5351	♀	<u>Akodon</u> <sup>olivaceus bestus</sup> 4 embs.	147 × 62 × 20 × 15	22.0g
5352	♀	<u>Oryzomys longicaudus</u> 6 embs	217 × 126 × 26 × 16	28g
5353	♂	" " testis 8m, SV 12	250 × 141 × 31 × 17	47g.

Nov. 27, 1976

Gago Moreno, 790 m, Prov. Río Negro, Argentina  
 collected on 8 October at 11:45 am.

Specimen	Sex	Measurements	Weight	Notes
5354	♀	96 x 36 x 9 x 14	39g	8.6g coming to night rest in digg at 11:15 pm. Killed immediately large n, no milk; stomach almost full preg. CR 11 mm. No fat.
5355	♀	[92] x [30] x 9 x 15	39g	9.0g caught in net 9:45 PM; killed immediately. large n, no milk. Preg 14 mm CR stomach 1/3 full. Some fat.
5356	♀	88 x 34 x 9 x 15	38	6.7g caught in net 9:45 PM; killed immediately. Nipple not found. Uterus small, white, st horn 1.5x, slightly larger No fat. Stomach almost empty.
5357	♀	97 x 39 x 9 x 15	39	7.6 Preg. 13 mm CR. large n, no milk. Stomach empty. No fat
5358	♀	94 x 37 x 9 x 15	40	7.8 No fat. Stomach empty. med-large n, preg. 12 mm CR.
5359	♀	95 x 40 x 9 x 14.5	40	7.7 No fat; stomach empty large n, no milk. Preg - 12 mm CR
5360	♀	98 x 42 x 9 x 15.5	41	8.2 No fat, stomach empty Large n, no milk. Preg - 13 mm CR
5361	♀	89 x 39 x 9 x 15	39	7.6 No fat, Stomach empty large n, no milk. Preg - 12 mm CR
5362	♀	88 x 38 x 9 x 15	38	7.5 No fat, stomach empty, Preg - 13 mm CR. large n, no milk
5363	♀	117 x 53 x 8 x 26	47	12.5g topped in garage, later after 8:00 PM large n, no milk. Stomach empty, no fat Preg - 12 CR.





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1976

12

Nov. 28, 1976

Corral de Piedra, 71 km. SE San Martín de los Andes, 1900 ft

Prov. - Neuquén, Argentina

- skull only  
5364 ♂ *Myotis* caught in net over water between 11 PM & 6 AM; killed immediately FA = 37  
spid easily visible in tail, but skinning 88 x 34 x 9 x 14 6.4 g.  
Testis 4 x 3, straw color.  
Stomach empty, accessories 2 mm. No fat.
- skull only  
5365 ♂ " caught in net 10 PM, killed 8:30 AM. Testis 3 x 2, white; access. 1 mm  
spid barely vis. in tail. Stomach empty, no fat. 90 x 38 x 9 x 14.5 38 6.6 g
- skull only  
5366 ♀ " caught in net 10 PM, killed 8:30 AM. No fat  
large m, no milk. Preg at horn - (16 mm CR; FA - 8.5 mm) 94 x 40 x 9 x 15 40 8.9

Paso de Flores, 1700 ft, Prov. Rio Negro, Argentina

- skull only  
5367 ♀ *Myotis* Dayroost in roof of geyser. Slight subcut fat + visceral. Stomach empty  
large m, no milk. Preg - 15 mm CR. 93 x 39 x 9 x 14.5 40 8.6
- 5368 ♀ " as 5367. Slight subcut + visc. fat. This one slightly paler than 5367  
large m, no milk. Preg, CR 15 mm. 91 x 37 x 9 x 14 38 8.6

Nov. 30, 1976  
Rio Cataratas Overo, 1500 m, 44 km W Bariloche, Rio Negro  
In matorral de lenga. Testis 15 mm, anvil large  
183 x 61 x 27 x 15 83 g.  
*Notomys*

specimen given to  
Fundación  
Bariloche

- 5370 ♂ *Phyllotis micropus micropus* 3600 ft M [845 m according to forest birds)  
mallin. testis 8 mm, SV 8 mm.  
208 x 88 x 27 x 19 48 g.
- 5371 ♀ *Akodon longipilis* not preg. ui occurs  
mallin  
177 x 80 x 24 x 16 36 g.
- 5372 *Sizardia pectoralis* mallin 845 m

5373

44 km W Bariloche, Rio Negro, 1300 m + 890 m

Dec. 1

- 5374 ♀ *Akodon* sp. *olivaceus* Censor 6, Bosque Bajo 890 m  
Bosque mifto, Censor 6. 6 emb.  
182 x 80 x 24 x 16 26 g.
- 5375 ♂ *Onychomys leucogaster* test. 6. in incendio bosque  
209 x 116 x 26 x 16 x 28 g.
- 5376 ♀ *Akodon longipilis* *maerens* 1300 m  
Bosque Lengua yesterday, killed today  
191 x 83 x 25 x 26 38 g.
- 5377 ♀ " " 890 m  
Bosque mifto, Censor 6. recently preg.  
192 x 76 x 25 x 17 x 44 g.
- 5378 ♀ " " 890 m  
Bosque mifto, Censor 6. lactating, no preg.  
184 x 85 x 24 x 16 41 g.

Dec. 3, 1976

Estancia El Condor 800 M, 22 km ESE Bariloche, Prov. Rio Negro, Argentina

- 5379 ♀ giant *Histiotus* *macrurus* lact. uterus large + vasc.; smelly recently parturient. No fat FA  
130 x 58 x 11 x 35 52 15.9 g  
marked egg - FA 19 mm; 3.3 g. ♀  
umbilical present
- 5380 ♀ " lact; marked egg, FA - 20 mm; 3.8 g. ♂  
uterus - at horn large, pale 8 x 6 No fat 128 x 57 x 11 x 34 51 14.9  
left horn - 4 x 2.5

skull only  
- 8 PM



OP Pearson

1976

Dec 3, 1976 (cont'd)

Estancia El Condor, 800 M, 22 km ESE Bariloche, Prov. Rio Negro

Argentina

5381 ♀ <sup>macrotis grey mated</sup> giant *Histiotes* with pyg: naked, FA: 21, 3.7g ♀ 128 x 54 x 11 x 35  
uterus large: rt horn 8 x 5; left horn 5 x 3  
left ov. small follicles; rt. ov. same. FA=50 15.5g

5382 ♀ " " <sup>pink mated</sup> with pyg: 4.0g, FA: 21m ♂ 129 x 58 x 10 x 35  
uterus large: rt horn 6 x 4; left horn 3 x 2  
No fat. FA 50.5 15.5g

5383 ♀ <sup>"</sup> Big-eared *Histiotes* large m, milk. rt horn 4 x 3; left 2.5 x 2  
small follicles rt + left ov. No fat. 125 x 60 x 11 x 37 51.5 15.5g

5384 ♀ <sup>macrotis</sup> small *Histiotes* uterus small, white, equal horns  
nipple not found. No fat 111 x 48 x 10 x 27 46.5 12.5g

5385 mummy from floor - bat

5386 ♀ <sup>macrotis</sup> Big-eared *Histiotes* uterus small, white: rt horn larger - 2.5 x 1.5.  
med m 118 x 49 x 11 x 31.5 48.5 13.0

5387 ♀ " " uterus small, white: rt horn 2 x 1, left 1.5 x 1.  
small m 109 x 51 x 10 x 36 50 13.5



Pearson, C. P.

1976

Journal

Argentina



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1976

Journal  
Prov. Mendoza, Argentina.

Oct. 21. Left Mendoza about 1 p.m. and drove to San Rafael, all paved, then to Monte Coman. Camped in sage brush about 2 miles N of the Rio Diamante, north of Monte Coman. Lots of vineyards and fruits (apple, quince, almond, peach) around Mendoza and San Rafael, apples and locust in bloom. All irrigated. Mendoza is dry dry, native vegetation gets lusier in a line towards Monte Coman. (two railroads cross at Monte Coman). Saw 2 trice of tinamous (*Eudromia elegans*) between San Rafael and camp, plus a couple of other singles including one right at campsite. When we arrived at camp about 6:30 p.m. a bulldozer was dozing sagebrush in a strip along the main <sup>gravel</sup> (dirt) road. It was being followed by about 20 chimangos (presumably looking for squashed quince pits, lizards etc). Like a glow being followed by sea gulls.

The sage brush is very rich: Salvia up to 6 ft., "rabbit brush", berberis-like bushes, grass, composites, and at least 5 other common bushes. Maybe 50% ground cover, soil sandy, no rocks. Stray cows & horses. Many face flies (non-biting) at 7 p.m., no mosquitoes. I set 35 museum specials baited with corn meal, ant set baited with rolled oats, many ants.

Oct. 22 night calm & clear. Saw porcupine (large), a few bats no mice during brief jacklighting. Traps caught 1 *Calomys*?, 2 spring empty. From tracks, a jumping mouse is also present (*Eldredomys* or *Gracomy*?).

about 9 drove back to the main road where the bulldozer was working and followed him along for about an hour. The chimangos left him when we arrived. We picked up two good quince pits (one





only stunned, the other with hindquarters buried), several other guinea pigs scared off or squashed. also several lizards, one smallish rattle snake (not collected), one "gopher snake", and one "blind snake". The latter was squirming in the wake of the bulldozer.

Then ~~headed for~~ <sup>went to</sup> Monte Coman and headed (we thought) for Goico and media Juva by the "easy" southern road along the railroad. Our information was garbled or incomplete and we spent the day heading more or less east between the railroad and the Rio Diamante. all flat monte (Jarrea and many other bushes, occasional thorn trees, occasionally a flat of pampa grass. Lots of birds and guinea pigs, the latter sometimes 8 ft up in trees and bushes. They (guinea pigs) surely are one of the most important converters here. about 2 o'clock we were having an overheating problem and losing a pint of water every mile or so from the heater. after stopping at several puertos for water (precious horse with thorn corral, goats, horses, cans, a well about 20 ft. deep), we cut a hose and bypassed the heater (which was blocked). about 3 o'clock came to a sandy place that I didn't think we could cross. Went back to the last puerto where we had inquired about the route and were assured that we could make it. 10 minutes later we were hopelessly stuck. worked for 3 hours with shovel, jacks and bushes. still stuck when a gaucho from the puerto showed up, helped dig etc, then hitched his horse to the front bumper with a rawhide rope, mounted, and with motor + horse we progressed a couple of car lengths. Then repeated. Out by 7. Camped in the middle of the road about a mile further on. Anita put out 9 shermans and 12 museum specials while I walked back to thank the gaucho.

Tadrisa see Oct. 23

Oct. 23

night clear, temp.  $< 38^{\circ}\text{F}$ . numerous tree-toos calling during the night. a few last night also. It is a remarkably resonant



sound, tu-co pause tu-co pause etc, frequently ending with a tue tue tue tue. Heard it after daybreak but not during sunny part of day.

At an abandoned, crumbling Puerto yesterday found a Todarida between a ceiling beam and a wall. Since we were lost all day, I guess locality as 10 km N <sup>Argentinian</sup> ~~Chaco~~ ~~Caracas~~.

Amita's traps held one mouse, in scrub along road, no grass.

Battery was down, motor barely turned over. Waited about an hour for warmer weather, then it caught. Drove to Orejavia, skinned, then drove to Monte Coman. Picked up 3 hitchhikers on the way. Saw a pair of Dolichotis, lots of guinea pigs, one smallish armadillo (not the mullita and not the pichi, many carachos (perhaps because of the telephone poles, which are in short supply in the monte). The guinea should have some big snake + raptor/predators.

Drove south to Orejavia, then along the railroad to Monte Coman (lunch) then to San Rafael for lubrication and new battery, ~~then~~ ~~Orejavia~~ then towards El Sosneado but stopped at the RR station Los Parlamentos, which is 60 km NNE Malargue and, according to the station master, 1,170 m altitude. It is at the edge of a huge pampa with almost pure juncus, very sandy soil; north of the station is sage brush. Put about 12 museum specials around piles of quebracho RR ties in the juncus, and strung a hot net in the courtyard of the station house. Wind moderate stopped before dusk, resumed somewhat during night, <sup>set two tuco-tuco traps</sup> in the juncus.

Oct. 24 Caught 6 Todarida in the net, 5 of them before 9:30 p.m. are ant-eater sized in the mouse traps, and two tucoos. Station master calls them tuldugues and describes their call tue tue. He seems to be a good informant. Says there are lots in the attic winter and



summer, but more in summer. Winter temps get down to  $-10^{\circ}\text{C}$ . He hunts lots of middle-sized armadillos. People from Mendoza come and hunt many quacoras in nearby hills. Water table is only a meter or two down, somewhat salty, a layer of salitre. Oil & gas wells and lots of drilling. He says there are abandoned coal mines near both El Sascudo and Malargue (up roads to the west, I think). One of them has a hotel up the same road, a man named Castaño (near Malargue?) knows all about one of them.

Left about 9:30, early lunch in Malargue, then south on Route 40. Man in Malargue says summer temps up to  $30^{\circ}\text{C}$ , winter down to  $-10^{\circ}\text{C}$ , but snow only about once a winter, and rain only a half-dozen times a year. Lots of alamo plantations which are said to mature to cutting size (for lumber) in 8 yrs. Camped 3 p.m. in a side canyon about 1 mile west of the Rio Grande about 10 km by road south of Barridos Blancos and 60 km S Malargue. Goat-ridden habitat of ephedra, thorn bushes, occasional bunch grass, lots of stoney-gravelly soil visible (maybe 30% plant cover). A narrow quebrada next to camp, dark cliffs across the Rio Grande and on this side also about 1 mi. south of camp.

Set about 35 museum specials in a rocky cliffy outcrop and among ephedra + thornbush. Also a lot net across our side gulley (with stream) and across a big galvanized culvert under the road. Ants also set traps.

Oct. 25

Night clear,  $34^{\circ}$ . Nothing in nets or traps. Very few birds of any sort, no chimangoes (sterility index). Left about 9:30 and drove south on Route 40. Lunch at Barrancas, through Choz Malal. All semi-arid, sage brush, occasional irrigated patches, usually with poplar trees. Saw one troop of rheas, no tinamous, paper or quince.



pigs. Some rat sized *Lepus* seem to live in the middle of big thorn clumps. Camped at 7 p.m. along the Rio Pichi Neuquen. Sandy hummocks with sage & thorn along the river, then rising to sage brush stony desert. Lots of rat-sized droppings in the middle of the sandy hummocks built around thorn bushes. All day was somewhat overcast.

Oct. 26 Night cleared up, minimum  $33^{\circ}$ . my traps  $\pm 30$  m.s. in scrubby sage caught 1 *Eligmodontia*, Ant's in sandy hummocks caught 1 *Oryzomys* and 5 *Eligmodontia* (including 1 tail only). She had 44 traps out including 10 *Shrews*.

This location is the eastern crossing of the Rio ~~Pichi~~ Pichi Neuquen, 45 km SSE Chos Malal, south side of the river. I saw a colony of large rabbit-size holes and rabbit droppings, no tracks and no eyeshine while jacklighting.

Just before leaving we started to excavate over the hummocks with rat-droppings among the thorn-stems. a very large <sup>*Ergaticus*</sup> ~~*Phyllotis*~~ ran out to a neighboring hummock; caught him by hand. <sup>no rocks</sup> anywhere near.

Left about 9:30 after raining. Saw a rabbit newly dead on road about 20 miles farther south, a few miles north of Churruaca.

along the Rio Colorado about 5 miles N of the R. Agrio we stopped and looked in a large mine west of the rd. and a small mine <sup>east</sup> of the road. The latter had sparse bat droppings on floor & wall, a girl near the large mine said no bats, but yes in cliffs at the R. Agrio. The big mine was cool and would have been a good *Caryacus* site (but too wet for nursery colony). Lots of rabbit signs along the R. Colorado.

Had lunch at the Rio Agrio and looked in "potholes" and crevices in the cliffs for bats; saw only 2 places with a few





droppings, no bats.

Forgot to mention that the station master at La Parra (Pis) said that there were bats in the roof of his house winter and summer, but more in summer.

Then drove south through Zapala to the arroyo (Pis) Picun Leufu and camped along the river at a Puerto that had been flooded out a few months? ago by a rise of at least 12 feet in the river. Willows & poplars lying around, partly cleared up by chain saw and road scraper. Put up a bat net at a break in the willow trees near the river. Ante set 3 or 4 traps near some mouse tracks in the sand.

The terrain and vegetation begins to look like Patagonia at Zapala: more grass and bunchgrass, bushes more compact less scrappy, low mesas, goats giving way to sheep, horses, and cattle.

Oct. 27 night clear & calm. Ante saw bats twice. <sup>minimum</sup> Temp.  $23^{\circ}\text{F}$ .  
Sometime during the night a horse leaped over the bat pole. Nothing in net. No mice, saw rabbit.

Left early and drove to Bariloche via Junin de los Andes and San Martin de los Andes. Lots of European rabbits squashed on road and a few seen alive. Much wandering on back roads because of misleading road signs or no signs. Put up at Hotel Acosupa.

Tulips, cherry trees, Scotch broom in bloom in Bariloche. One of the Nothofagus just coming into leaf.

Oct. 28 night clear but somewhat overcast during day. Spent the morning with Drs. Eduardo Reppert and Gilberto Gallopin at the Fundacion Bariloche and with Sr. Gregorio, Director of the Museum of Patagonia. They developed a few leads for bats. Put two nets in the



evening at the <sup>archology</sup> Chalet 4 km west of town (owned by an  
Deft. of aviation official). Lots of droppings at what appears  
to be a night roost, and a hole in a beam where the  
caretaker says bats emerge. o

- Oct. 29 night clear & cold. In the morning 1 Tadarida <sup>in</sup> ~~at~~ the  
net at the night-roosting corner of the house, but none in the  
net covering the north porch where bats were said to emerge  
from a beam. Shopping, drove to Ilo-Ilo and cut ~~for~~  
some Chusquea <sup>canes</sup> ~~cassia~~ for bat poles. Returned to the archology  
house in the evening, tidied the nets, and watched for bats to  
emerge. Some were flying but saw none emerge. Overnight,  
temp. about 56° F. The caretaker of the house says bats are  
present winter & summer, but more abundant in summer.
- Oct. 30 morning clear, temp. °C, two Myotis in the night-roost  
net. Caretaker says they were caught after midnight.

Coffee with Wm. and Hilda Rumbolt, 3 1/2 km W Bariloche. She  
has seen Sasmerus here, feeds hummingbirds (2 species), and says  
the hummers are present winter & summer. People take  
torpid hummers to a taxidermist friend of hers. Lunch with  
Rapaports, then out to Hotel Lago Moreno, near Ilo-Ilo,  
turnoff at 20 km. The garage at the hotel had a good bat  
at the, one torpid & Myotis at 4 p.m. (air maybe 60°), and  
lots of droppings. Informant there says bats are present winter  
and summer, has seen a group of them torpid, head down,  
when he pulled boards off the side of a house (the Ilo-Ilo Hotel,  
I think). Snow here reaches as much as 20 or 30 cm. There is  
a sharp cline of rainfall from 500 mm at the Bariloche airport  
to 1000 mm at the town to >1500 mm in the mtns to the east.



at 7 p.m. (cloudy + cold) we strung 3 nets across the front of the garage. Stood watch until 9:30. Saw insects flying and numerous bats flying. One ♀ caught in net before we left at 9:30. Temp. in Bariloche at 10 p.m. was  $9\frac{1}{2}^{\circ}\text{C}$ .

Oct. 31 morning partly cloudy. Temp. at 8:30 AM was  $10\frac{1}{2}^{\circ}\text{C}$ . Fourteen ♀ myotis in the nets. The local caretakers (Paulo + Antonio and spouses) say that there were more bats in the net at 11:00 p.m., that they were escaping, and so they killed the remainder. None visibly pregnant, none fat, all with full stomachs. Three full stomachs together weighed 2.2 g.

Left about 2 p.m., drove through Bariloche then toward Pileanigen. The RR station at Nihuan is near a deep narrow canyon with an arched wooden bridge. Too many Sunday picnickers and a soccer game to stretch nets. (Station master not there either). Drove to the next station, through bunchgrass and "pinon-juniper," and stopped there. Station surrounded by willows + poplars, good cliffs nearby, a shallow lake of several acres with ducks, banderinas, ~~and~~ loquips, etc. Nobody around. I put out about 20 traps in bunchgrass - rock - bushes and a few among railroad ties. A few small, all-yellow Calceolarias blooming on the knoll where my traps are. Found one with nibbled tip, partly healed. Evening windy. One net across end of lake.

Nov. 1 Night was clear without wind, but overcast at dawn. Nothing in nets. Traps held 2 Phyllotis and 2 red-backed long-nosed shrews. Temp at 7 a.m. was  $6^{\circ}\text{C}$ . Willows and grey birds just leafing out, a robin (Turdus f. leucotis) feeding fledgling. This station on the RR is Cerro Moreno, 25 km ENE Bariloche. No mice in the Calceolaria traps.



Drove to Rio Pichileufu, skinned, asked about bats at the Estancia (none, 4 Indians said none), drove to Pilcaniyeu, asked about bats at the bakery, the store, and the RR station. Everybody except the baker said none, he said they live in cliffs and fly around town at night. Drove to Estancia Pilcaniyeu, which is a couple of km SE of town. An English-speaking employee (not the administrator Mr. Williams) said he had seen some 2 yrs ago in a rocky cliff a couple of km east of the Estancia headquarters. We drove to the site. Good portulaca columns, lots of crevices, holes, and caves, but search revealed no bats. Vexichas and oadles of accumulated vexichas droppings. Vegetation is bunchgrass and low rounded thornbush. a  $\frac{1}{3}$ rd grown hare is freezing under a thornbush about 5 yds from our tent. Tucos tucos in the grassy flat, sandy, along the stream. They give 3 or 4 very rapid raspy grunts, a 1-second pause, then repeat, not as clear a sound as the meadow tucos make. They sang in the middle of the afternoon, warm & sunny breezy, contagious. Four at same time.

Put out about 25 museum specials in bunchgrass - thorn-berberis in rocky-chippy place. Strung a bat net at 8 p.m., first star at 9 p.m., temp.  $8^{\circ}\text{C}$ , lots of moths and other insects flying. Burned lanterns near net to attract bugs and, hopefully, bats. Saw no bats at dusk.

Nov. 2 Temp. at dawn  $5^{\circ}$ , cloudy. Tucos singing at 4:30 AM and at daybreak. nothing in net. my traps 5 red-bellied abodon and 1 big Phyllotis. One tucos in trap. Ant's traps held 4 red-bellied abodon, 3 big Phyllotis, plus one yellow-nosed abodon. This one out in







5km SE Pilemeyer, Prov. Rio Negro, Nov. 1, 1976



Estancia Leleque, Prov. Chubut. Nov. 17, 1976

*Histrionus montanus* in attic.



flat valley bottom, the others in rocky-bushy or cliffs.  
A gaucho on the estancia says there was a plague last  
summer of much smaller mice (lauchas) that ate ropes around  
the corral etc. He seemed surprised that we didn't catch any of  
them.

Various people questioned along the way south of Pilsanigen said  
no bats. The RR doesn't seem to have station houses, or if so

(Cont.)

Nov 2-1976

① 8 - adult-sized, red-backed Atodon discarded, as follows:

3 ♀♀ : early preg, 3 emb.

early preg, 3 emb.

uterus 2 mm, not visibly preg, vagina very stout.

5 ♂♂ : testis 11 mm

testis 12 mm

testis 12 mm

testis 13 mm.

testis 12 mm

② Discarded: 3 Phyllotis - 2 ♀♀, 1 ♂♂: { vagina open, uterus 2 mm, vagina stout.  
Ovaries in pink follicles or CL.

vagina open, uterus 1.5 mm, vagina stout, ovary large follicles. ♂: testis 10 mm, SV 13.

they are unsatisfactory for bats, arrived El Maiten in mid-afternoon  
and heard about a possible bat location on the property of Sr  
Braede ± 2 km N of town on route 40 (the eastern road). It was  
an old wooden abandoned flour mill in a charming clearing of  
fruit trees, willows, etc. The caretaker lived across the road (the  
mill is on the east side). We set up camp among Conium +  
dandelions under an elderberry tree and quince bush at the  
edge of an abandoned orchard (cherry, apple, pear) all in  
bloom. This vegetation must be saying something about the  
climate here. The caretaker's sons had caught bats in this mill  
a couple of years ago. We strung two nets at the mill. House wrens  
and mocking doves singing, robins about.



26  
Evening was mostly clear + calm, temp at 9 p.m.  $8^{\circ}\text{C}$ . Saw a few bats flying about 9:30, caught one Histiotus at about 11:00 p.m.

nov. 3 Night was mostly clear, but sprinkled before dawn, and overcast + sprinkle at 7 a.m. no more bats. Temp.  $8^{\circ}$  at dawn. Insects were flying last night at dusk.

almost everyone we talk to is familiar with a Zenaidura of some sort. Drove south asking for bats, but most people said none. Willows are in leaf and fruit trees blooming. Lilacs blooming in Esquel, and tulips. Day of bunchgrass - rabbit-bush - thorn bush, poplars + willows around Estancias and pueblos. Camped in windy pampa next to shallow pond with flamingos. Temp at 9 p.m.  $6^{\circ}$  windy. Set about 25 traps and traps about 40.

nov. 4 Wind stopped early in night, but morning drizzly and calm,  $6^{\circ}\text{C}$ . more pampa as we drove south all morning. Tried the road from Rio Genquito to Lago Fontana but too awful, so continued south. Last night's catch was 5 Eleginodontia. Location was 38 km S Gobernador Costa.

3 Eleginodontia discarded: adult ♂♂: testes 6, 7, 7

Saw a few queroses maybe 10 mi. N Rio Mayo along route 40, but more (maybe 30) after turning west toward Lago Blanco. They were in the most miserable parts of the pampa (sparsest + lowest vegetation), sometimes mixed with sheep. Lilacs and fruit trees blooming in various towns, and a big-spined barberry in the desert. Everyone agrees no bats.

Vegetation becomes greener + graminier as you drive toward the mountains. West of Lago Blanco it becomes almost pure bunchgrass with other green grasses in between, occasional



yareta or low thorn hummocks and a few 5' thorn bushes or thickets. Stopped at Estancia Valle Huermapu, no bats.

Then drove west hoping for trees for the night, but all pure pampa to a big military base at the border. Beautiful snow mtns beyond. Turned back and camped 4 km W Lago Blanco, almost pure bunchgrass in rolling hills, I put about 25 traps in bunchgrass and in a sparse copse of thornbush. Anita set 20 traps in pure bunchgrass (sandy soil). Day cloudy.

afternoon windy, temp  $6^{\circ}\text{C}$  at 9 pm, still windy, scattered clouds.

Nov. 5

Wind all night + still windy in morning. Sunrise temp  $3^{\circ}\text{C}$ . My traps had 2 Elgmodontia (bunchgrass), 1 Akodon pontho (thorn), 1 house wren (thorn), 1 Phyllotis (thorn, stones but no rocks). Anita caught 1 Akodon pontho and 1 Reithrodon.

The chest-high thorn copse is surprisingly good wind shelter. Surely the wren spent most of its life in this isolated copse.

Discarded: 1 baby Elgmodontia (7gr.)

1 ♀ Akodon xantho with scars + CL. Not lost.

Left 10 a.m. Saw 1 rhea and the guanacos again on the way back to Route 40, then south to Perito Moreno 2 pm. Saw 2 more rheas and a few more guanacos; one half-grown. Millions of dandelions in bloom and seed at Perito Moreno, also lilacs. Between Perito Moreno and Bajo Caracoles we drove about 5 km took a road toward the Cuevas de For Manas but when we stopped at a puesto for road directions the man said the road was impassable. The grader was working on it, however, The cave seems to be on the Rio Pinturas.

Stopped for the night where the road crosses the Rio Echer, 65 km S





Perto Moreno. The administrator? of Estancia Casa de Piedra said no bats; 2 guys stringing fence said sure, they find bats in rock crevices in the volcanic rim-rock. Numerous shallow eyes visible. We awoke on a landing strip in sandy bunchgrass - low shrub. The little yellow Calceolaria is beginning to bloom just as at Station Perto Moreno east of Bariloche on Nov. 1. Put out about 25 traps along rim rock and in thorn bush on pampa; Ant's put out 34. String 1 bat net just below the rim rock. no wind, sky  $\frac{3}{4}$  cloudy, full moon. Temp. at 9 p.m.  $8^{\circ}\text{C}$ . Felt almost eerie without wind.

Nov. 6

morning clear, no wind, temp  $1^{\circ}\text{C}$ . Saw no bats last night, and net untouched. Saw 2 troupes of Tinamotis yesterday and one single. They were calling last night and this morning: a distinct or trio, less raucous, more muted than T. pentlandi.

My traps had 1 baby (alabon) <sup>pampa</sup> Ant's had 2 ~~adult~~ alabon (red-bodied): (1 adult breeding  $\sigma$ , 1 juv with small testes) and 1 large  $\sigma$  Phyllotis darwini (large testes + accessories)

Probably parula

Drove south to the Rio Belgrano - Rio Chico for lunch. Saw a rhea with  $> 9$  small striped chicks. Vegetation all very low with bunchgrass, herbs, cushions. No attempt at cultivation except in towns. The sheep seem to be completely untended, in groups up to a couple of dozen, surely 10 miles or more from nearest human. Yesterday we drove 8 hrs, all except the first  $1\frac{1}{2}$  hrs, on the main N-S route 40, and we passed 2 vehicles, not counting a truck stuck in the mud and another big truck trying to ~~start~~ <sup>extricate</sup> it. Three hours of driving this morning we passed 1 vehicle. This person and one other in the "town" of Bajo Caracoles were the only people seen all morning: no gauchos,



no nothing. Things have hardly changed since Hatcher's time.

Almost everyone we talk bats to mentions capturing them with a "white trap", perhaps hanging white sheets?

after lunch drove to Schneider Gregores, then Estancia La Julia, some of it through arid stretches with badlands, but mostly stepping into a few grassy areas & trees (plus ubiquitous sheep and new lambs). Then went on Rte 288 to Laguna Grande, a cluster of huts & houses by the road. Turned north on a side track about <sup>2.5</sup> km W of the fork at Laguna Grande (or Hotel La Horqueta) and blundered onto a long-abandoned brick house with a Histiotus hanging in the shattered entryway at the front door and another in the attic hanging on a rafter. Temp. 17° both places, both torpid, both ♀♀. The house is upwind of two tennis-court-size grassy fields rimmed with sickly willows, poplars, tamarisk-like, and alamos. The house used to be at the edge of the lake, but the water is now 75 yrs. away. Flamingoes. Everything scattered with muckable quantities of rusty tin sheets, broken bottles, boxes, old auto tires (such as size 6.00x20), wagon wheels, etc. Windy. Considerable droppings on front porch and in attic.

Strung 2 bat nets at 9 p.m., windy. Temp at 9:30 (dark) 11°C. Watched nets until 11:45. One bat approached nets many times but seemed to detect them (they were billowing violently in the wind). Wind boisterous from 10 to at least 12, and strong at least until 1:30 a.m. Temp. at 1 a.m. 7°, at 3:00 a.m. 4°, at dawn 3°. at <sup>a.m.</sup> 1 p.m. nets held 3 ♀ Histiotus, at 1:30 another one, at 3:00 another ♀ plus one that was just hanging from the net by its hind feet.

7  
nov. 7. morning clear, but wind built up before 7:30 and then more overcast. The one caught between <sup>1:00</sup> 1:30 and 3:00 was killed immediately, and had stomach 1/3 full.



(Lakeshore)

Nov. 7.

Nov. 7, 1976 - Laguna Grande. Returned to attic one 17g ♀ Histioglossus w/ large nipple, FA 45 mm. banded 250. caught in net ~~at 3 am~~ between 1:30 and 3 AM.

Processed bats in A.M. Caught 3 lizards under tin, much warmer T<sub>B</sub> than air. Then drove 5 km west to Estancia Meneses where 3 men all agreed no bats in this region! Then drove back to the forks (Hotel La Horqueta) where assorted people agreed there were bats in 2 or more of the three houses. Put up a net at the Gendarmerie and another at the hotel. A small ~~grass~~ garden next to the hotel has lilacs in bloom, full grown Swiss Chard, onions, seedling carrots, rhubarb, currants.

Wind gradually died down at 7-8 p.m., at 9:15 p.m. 3/4 cloudy, Temp 12°C. at 11 p.m. 9½°, not windy; ~~at 3:15 am~~





Laguna Grande, Santa Cruz. 11/7/76  
Bats in attic and on front porch (*Histiotus montanus*)



52 km WSW El Cefato, Prov. Santa Cruz. 11/10/76





Nov. 8

(Pueblo)  
Nov 8, 1976 - Laguna Brakes. Caught in net overnight. Processed in AM.

Released: ♀ nipple large, no milk, not obviously preg: band 249

at the lakeside house 2 1/2 km W of the Pueblo ♀ late preg. large nipple: band 248

♀ nipples large, ~~late~~ obviously preg: band 247

♀ obvious preg, large nipple: band 246

♀ " " " " " 245

at 5:15 a.m. hazy, calm, 5°. Bats emerged from the high eaves of the south side of the gendarmerie house at dusk ( $\pm$  9:45) and 3 or 4 promptly got caught in the net there. A few more before midnight, and two along about 5:15. Only one near the hotel, and it early in evening. Total catch 3 ♂♂ and 7 ♀♀. The gendarmie house with the complete roof seems to be a nursery colony, the lakeside house 2 1/2 km west is a night roost and possibly the attic an alternative nursery roost.

When released into the attic, 3 disappeared back into the dark, but two scrambled along rafters + beams quite actively, looking like rampires; certainly more mobile than Plecotus. The galvanized roof was warm to the touch, everything else cold, sky overcast. This was 10:30 a.m.

Drove to El Calafate. Saw rheas + guanaco. First 7 hours saw 2 vehicles, one of which passed in our direction while we were stopped looking for a gas leak. One more in last hour before El Calafate. No trees. Not windy. Evening in El Calafate cool, no wind. Several informants say no bats - by cable, current, and tractors on both sides of river. Day's drive included 2 ferry boat rides in old LSTs powered

In El Calafate lilacs, + apples are blooming, dandelions, tulips, cherries mostly finished blooming. People are planting vegetable gardens. And more



# Bats Banded

1976

Argentina

#	Sp.	Location	Sex etc.
250	Histo.	Laguna Grande	♀ late preg - see notes
249	"	"	♀ nipple large, no milk, not obviously preg
248	"	"	♀ late preg
247	"	"	♀ "
246	"	"	♀ late preg.
245	"	"	♀ "
244	Histo.	Leleque	♀ FA 49; weight 14 g large m., milk not expressed (cap. 49)
243	"	"	♀ 47; nipple med, looks preg. (not torpid).
242	"	"	♀ 46; very large m., milk (not torpid)
241	"	"	♀ 47; very large m., milk (torpid)
280	"	"	♀ 48; nipple large, no milk, looks preg (not torpid)
279	"	"	♀ 47; nipple large, no milk, looks preg. (not torpid)

17 Leleque  
76 caught in net  
by until 9 AM.  
banded 7 AM



Nov. 9 Stayed overnight in motel in El Colafate. morning overcast, no wind. at 10 a.m. drove out <sup>to</sup> the moreno glacier (Ventisquero) overcast but no wind. yellow berberis <sup>(= colafate)</sup> in full bloom, plus a shrub-tree with bright red tubular flowers <sup>= Ciruelillo</sup>. *Zonotrichia* singing. Camped 3 pm in a campground 52 km WSW El Colafate on the edge of Brezo Rico. a mixture of beech trees <sup>(N. latifolia)</sup>, berberis scrub, and the red-flowered bush. I set about 40 traps, mostly in shrewy places with lots of duff, small rattlesnake fern, mossy stream. Anita set 36 traps along lake and in scrubby spots around camp. a few squirrels. many of the beech trees have lots of golf-ball-fungus, the ground often littered with fresh or dried ones.

Visited the glacier at Ventisquero. Lots of action with numerous icebergs breaking off. The glacier has occluded an arm of the lake (Brezo Rico), and its level is presumably rising and will eventually break through the ice barrier some day. It has risen 10 ft. or more in the past because large dead trees are standing in the water and somewhat above the present level.

Evening overcast, no wind. Put up 1 bat net in our camp clearing (beeches and colafate bushes). 9:40 p.m. 9°; 10:15 still light enough to read watch, 11° C.

Nov. 10 6° C at 4:45 a.m.; 2/3 clear, no wind. at 6:20 clear, no wind, 6° C. Cloudy by 7:00. Clear by 10:30 but then windy, nothing in bat net. my traps had 1 short-tailed long-clawed *Notomys* at edge of little stream, 2 large *Oryzomys* in thick wet vegetation, and 2 red-backed akodon (*longipilis*?) in thick wet vegetation. None of my traps along rotting logs in deep duff under beech trees was touched. Anita caught 2 red-backed akodon under ledge near log jam at edge of lake, and an akodon *foetida*? under berberry at edge of camp.

ad: 2 red-backed Akodon: breeding; ♀, 3 emb; ♀ not preg, but large CL



Lots of Zonotrichia singing. Hares very abundant; about 1 line hare per km between the park gate and Ventiqueros.

Drove to Estancia Abio, no bats they say, then to Estancia Alta Vista. no bats, they say, but by then too late to look elsewhere. Put out about 60 traps total through lush green grass, sheep-grazed sagebrush, and along a huge woodpile. Also one bat net. Then dinner with the Estancieros and wife (Sr. Alejandro Stipicic). Evening clear, ~~clear~~ breeze, Temp 6° at 11 p.m.

Nov. 11

Morning calm, drizzle, 6°. No bats. One Abodon hant and 1 immature Rhithrodon (in lush green grass 1½ ft. tall). Then rain. Stuck in middle of road between Estancia Abio & Colafato. after about 2½ hrs the light rain had washed enough mud out of the ruts so that stones & gravel were uncovered, which allowed us to escape. Checked into motel in Colafato, then went to see the police chief's collection of Indian artefacts, guns, watches, & coins. Then to the Park Hq. where we were put in touch with a park ranger with 20 yrs experience. He seemed thoughtful, careful, precise with data - a good informant. Says there are bats in the forest under the bark of trees and in hollow trees, winter and summer. Doesn't know of them in houses. They are torpid when caught. No other bat leads in town, saw no bats at dusk at 10 p.m. Temp. not cold.

Nov. 12

Drove out to the park entrance in the morning and hunted for bats for about 2 hrs in good Urospora forest. above the road. Lots of over-mature trees with hollows, loose bark, etc. no bats.





Afterwards, talked with a woodcutter who lives just east of the park gate. He knew bats, showed me on his woodpile the kind of places they stay, said they were found winter and summer, it ~~was~~ sometimes they were only partly alive, "like a tortuga".

Talked with the owner and the foreman of <sup>Estancia</sup> ~~La~~ Cero Buenos Aires. They both said no bats at the Estancia. The foreman said he had cut wood there for 4 yrs and never found a bat.

Drove to the Lodon Caves east of Calafate. Lots of good crevices, holes etc. Found brown or great-horned owl pellets. Then drove till dusk on the road toward Santa Cruz. Camped in quite open short-grass with only a few small spiny shrubs. Set total of about 30 traps. Night calm, overcast. Biting gnats.

Nov. 13

Morning overcast, 14°. Night was calm, but tent blew down about 6 a.m. Drove all day to <sup>Pedro Bueno</sup> ~~Santa Cruz~~ then with our Route 3 to beyond Fitzroy. Saw a few rheas and guanoes, tinamous < 1 week old. Country very open, mostly flat, no trees, lots of sheep. Mostly clear. At 9:50 clear, still windy, 16°

more comments on the emptiness of Patagonia: From Calafate to Pedro Bueno to Fitzroy, about 15 hrs of driving on good road (total 673 km) we saw one gaucho driving a troop of horses (9:30 a.m.) and one group of 5 doing something with a group of a hundred or so sheep (4:30 p.m.). In Pedro Bueno, of course, where we had a tire repaired, we saw people, and there was a convoy of 20 ± oil exploration trucks on the Calafate - Pedro Bueno road and other trucks on route 3, but other than those mentioned nobody was outside



outdoors doing anything. It was a Saturday, mostly sunny, and windy.

The station master at Fitzroy said no bats in Fitzroy but yes in the station at Perito Moreno.

Nov. 14

about 40 traps in thornbush-grass-quinto etc caught nothing. Evening was breezy but night calm. Temp at 6 a.m. was 7°. A tinamou nest with about 15 offlegreen large eggs. The bird seems to make a gentle early-morning call note "how now?".

Day mostly sunny and only moderate wind. Drove north on route 3 almost to Comodoro Rivadavia, then west to Fagnano and camped at Nueva <sup>Lubeca</sup> ~~Lubeca~~. Various stops revealed no bats and no knowledge of them. At Estancia Lavita they said no bats there but lots in the bell tower of a church in Rawson. They don't like having European hares. Saw clutch of goslings of the common Chloephaga; also with half-grown young. The RR between Comodoro + Fagnano seems to be abandoned.

Set about 25 traps in thorn-bush-grass-thorn mat sandy desert, and 2 bat nets: 1 at the post office and the other at an abandoned house 100m away. N. Nueva Lubeca consists of a substantial stone post office, 1 abandoned house, a shed containing mouldy sheepskins and 2 live chickens, litter, no people, poplar trees, and a few alamos. Aphid-infested. Saw no bats flying, no signs. Evening clear + calm, 10° at 10 pm. Nueva Lubeca is 60 km S ~~of~~ pso de San Martin (which is near a previous collecting locality, Gobernador Costa).

Nov. 15

Morning calm, around 4° at sunrise. No bats. Traps held 4 *Elignodonts* and 1 *abodon* ~~fauna~~. Caught in wild sage-bush brush.



grass. No bats. Picked up skulls from 3 skinned fox carcasses.

Discarded 2 ♂ Elymodontia: tests 6, SV 8; tests 7 SV 7.

4 km N of town  
Drove to Monter and visited Sr. Estancia Monter (Sr. Horvitz). The fairly old ranch house had good attic etc but they had no evidence of bats in it. They had occasionally found bats in a hawthorn tree alongside the house, and at least once had found dead bats under the tree after a freeze (at least 2 or 3 bats). Mrs Horvitz used to live at Estancia Laque, said there were bats in the attic there, and that she used to see bats hanging in the current bushes there when she was picking currents in summer.

We set all traps ( $\pm 70$ ) in three habitats: wet green-grass + junco + dandelion along the road to town; drier grass, bunch-grass weeds along the railroad tracks across the road from the ranch; and bunchgrass - sagebrush a few hundred meters east of the R.R. The sagebrush are waist-high or more, dense, with pale tubular blossoms.

Then drove back to the old mill 2 km N of town and camped there and put up 2 bat nets. Anita also put out a few traps in thick grass - dandelion - orchard. Evening calm,  $\frac{2}{3}$  overcast, 9°C at 9:20. Saw 1 bat flying near our nets at about 10 p.m.

Nov. 16

Morning calm,  $\frac{1}{2}$  overcast, 6°C at 6 a.m. No bats in net. Traps in lush grass along road caught only red-backed Akodon (plus one small Elymodontia in a dry culvert under the road. The dry field caught 1 Reithrodon + more red-backed Akodon, the sagebrush area produced 2 Akodon pantla, and the lush orchard caught red-backed Akodon. In addition to those prepared, discarded 6 red-backed Akodon, one of them a juv.

met Sr. Brade, owner of the old mill, and his administrator and the latter's wife. The administrator used to live at Estancia



Fofo Cahuel (east of Zeleque) and says the old Estancia headquarters there is being preserved as of historic interest and is full of bats.

After lunch drove to Estancia Zeleque and met Charlie and Nora Mackinnon. He is the man in charge of all the Estancias of a former English Company, now Argentine. The Estancias include <sup>Alcorno</sup> Alta Cura, Pilcaniyeu, Mañen, and Zeleque. In addition to numerous out-buildings, Zeleque has a brick main house with galvanized red roof over shingles, an attic, and Histotus in the attic. The house is surrounded by rows and rows of poplars, vegetable & flower gardens, Hawthorn trees, cypress trees, and green lawns, a trap door near the kitchen lets into the attic which is liberally sprinkled with bat droppings, and was quite warm. One mother & young was hanging in the open, others in cracks, especially between the double ridge pole and tin roof. The bats were active and scurried like mice along the ridge pole etc. We ~~had~~ caught some with long forceps, then stretched two nets outside the house along a veranda where the Mackinnons reported seeing them fly frequently. They report that bats are in the attic winter and summer, that in winter they hang near the where the kitchen stove pipe goes through the attic. They say winter temperatures go down to  $-16^{\circ}\text{C}$ , snow up to a foot deep. Spring and even summer frosts are common. Apple bear only about once every 7 years because of untimely frosts. Lilacs rarely bloom for some reason. In the vegetable garden were strawberries (blooming), lettuce, Swiss chard, cabbage, carrots, peas, rhubarb, endive, currants, gooseberries, onions. Pansies blooming, marigolds - daffodils finished.

Evening calm & clear. Temp. 10 p.m.  $9^{\circ}\text{C}$ . Caught several bats about 10 p.m. including 1 mole, several more in middle of night.





including two white temp. near  $3^{\circ}$  calm clear.

Nov. 17

Dawn calm clear, temp  $0^{\circ}\text{C}$ , Estancia summer thermometer  $-2^{\circ}$ . No more bats in net after "middle of night" [watch had stopped].

All ~~the~~ adult bats from attic were females, from non-preg through almost-volant young. Three males roared outside. Tagged 6 females and released them. Two landed in trees, the other disappeared promptly under eaves on both sides of the gable at east end of house. One scrambled up the brick wall to get in. Processed <sup>15</sup> others including a discarded juvenile *Histiotus*.  $70 \times 25 \times 9 \times 16$  forearm 29 6.3 g. naked. I think we handled at least half of the entire colony. All except one survived ~~holding~~ holding overnight in the bat net down to  $0^{\circ}\text{C}$  and were warm enough to fly early in the morning.

Drove to El Bolson and stopped at Sr. Kovac's house. He and his tapidermist son were in Buenos Aires, but another son directed us to the farm of another son, a farmer, at Hoyo de Bolson Epuyen 12 km south of El Bolson. He took us to two possible bat barns, but we ended up at a third in Hoyo <sup>on road to La Catarata</sup>, an old barn with abundant droppings and good reports from the owner. Droppings fairly large, didn't smell like *Tadarida*.

Temp at dusk (9:20)  $12^{\circ}$ , calm, clear, mosquitoes for a short time.

Nov. 18

Dawn partly overcast, calm,  $7^{\circ}\text{C}$ . No bats seen during careful watch, and none caught in net. At one of the barns visited yesterday, Kovacs had removed a big cluster of bats "like a swarm of bees" a year or more ago. This was 4 km S of the Hoyo Kovac's quinta.

Peonies + larkspur in bloom, apple trees with marble-sized apples. Frosts seem to be a problem, but not as severe as at Laque. Note that the altitude here is only about 400 ft. Saw eucalyptus trees as tall and straight as at LSB. Yesterday there were only a few wild roses in bloom, but today lots of them. After breakfast checked out the "old mill" on the Braide



property. It is only a few hundred yards from our nets of last night. We were told ~~by~~ by the owner (? or son?) that it had no bats and was dangerous to enter because it was falling down. Went back to the barn where Kovacs took us yesterday and where we had not seen or heard bats but were told Kovacs collected a "swarm" of them last year. Today at 10 a.m. we could hear them squeaking and could see a few scurrying between the wooden roof and the corrugated iron. Collected one with long forceps - a pregnant ♀ myotis, very dark. The daughter reported that several were hanging on beams out into the open at 8 p.m. last night shortly after we had been there. This farm is about 4 km S of the Hoyo de Epuyen and has the huge tall blue gum eucalyptus at the gate, east side of road.

Visited Lago Puelo in afternoon. Huge number of wild roses are mudding this whole area; no hares seen, although people say they are present. Not squashed on road as they are elsewhere.

Returned to the Eucalyptus barn, <sup>at 8 p.m.</sup> granero of Antonio and Flora Albion de Mayorga), which is about 4 km S of the Comisaría of El Hoyo (no longer being called Hoyo de Epuyen) or  $\frac{1}{2}$  km N of the El Hoyo school. They have a 6-foot diameter sequoia gigantea planted about 1917 and a quingbo. myotis were awake and in a cluster on a beam near the ridge. Collected about 20 of them, maybe half, all females. Strung 2 nets outside the barn hoping for moths. Evening cloudy, some wind in trees but not at ground level, temp at 9:20 14°. Bats emerged from west end of barn and flew higher than nets. Ants set traps in barn.

Daughter Beatriz a good informant says bats are present winter & summer. The fact that they use the granero for storing apples indicates that the temp. does not drop very low. granero = barn.



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Nov. 19

morning calm, temp. at 5:45  $12\frac{1}{2}^{\circ}$ . Bats were circling at west end of barn and entering under the eaves. None in nets.

Edmund, then gave a little bat demonstration at the local grade school where Mrs. Mayorga is vice principal. Then to El Bolson to meet Kovac's son but he didn't show. more shaming. at lunch met the head of the tourist information bureau who gave us locations of two potential bat houses, one about 3 km N of town (Sra. Azcona), a wonderful old water-wheel mill amidst high fields (no bats), the other an abandoned house south of town about 4 km owned by an Alfredo Barro. It had lots of droppings (*Histiotus*?) in the attic, but no bats.

Both the Tourist Information man and Sr. Mayorga agree that the flowering of *Colihue* bamboo is followed by outbreaks of "rats". Mayorga says the *Colihue* flowers every 40 yrs, last 1942, and that the shores of Lago Puelo were heaped with dead rats. Tourist says every 20 yrs and that last year was a flowering near El Bolson. The *Colihue* then dies.

The big hotel in central Bolson has a great attic, but no bats. Our waiter mentioned some caves, Cuevas de Hielo Azul, about 20 km from Bolson, high up in snow. a local, Francisco Jaccague has visited them.

Checked into a campground at La Catarata in El Hoyo at 8 p.m. and put about 15 traps along the torrent in *Notofagus* - *Fuchsia* - *grewth* etc. under boulders. all dry diff except 1 near splash.

Evening cloudy, calm, probably about  $13^{\circ}$ , no bats seen. They are NW of Bolson. There is a hut there. Visited by alpinistas.

Nov. 20

morning overcast, calm, not cold. Two *Oryzomys* and 1 *Notomys*? (in the splash set). *Gumiera* along the stream, *fuchsias* blooming (the presence of *fuchsias* says something about winter minima)

The yellow *Calceolaria* with the 3-lobed perianth grows here on a slender stem about a foot tall - hardly adapted to mouse pollination.



yesterday forgot to mention that I gave a bat-skinning and lat-anatomy demonstration to about 20 teen-age members of a Secundaria class of Mrs. Mayorga at the Guillermo Hudson Commercial School in El Bolson. One boy in the class said he had found a red bat in a cherry tree and that it was carrying two young. Kovace had told him that the 2 young were always ♂ and ♀. ~~the~~ Cherries are ripe at the end of November, and this one was seen while picking cherries. Most people are familiar with red bats and when shown our specimens say that we have missed a bigger one that is "maroon" or "cinnamon" in color.

Drove about 10 km toward Epuyen looking for bat houses, then back to El Bolson and about half way to Bariloche. Stopped for the night at Lago Guillermo <sup>2400 ft.</sup>. Day sunny, warm. Camp is in a scrubby mixture of Notofagus, cedar, retamo (not the yellow Scotch broom), wild strawberry, grass. a few partial clearings have tree diggings; really quite new, and incredibly light fluffy soil. Set 35 traps, mostly around two feeding holes that looked old, and two tree traps. Heard one tree call at dusk. Evening calm, temp. at 9:30 7°. One or more bats flying late dusk, maybe Lasiurus.

Nov. 21

Nothing in traps. Morning calm clear, temp at 6:30 0°, light frost and skin of ice on bucket. Drove to Bariloche, then to Estancia Fortin Chacabuco. Elderly German couple ± Zimmwaller, disillusioned with Argentina, no bats. Then to Estancia <sup>ALICURA</sup> Alicia, run by Laurin Morelli. They are in the midst of shearing, so the bats in the shearing shed are unavailable, but he took us to an abandoned house about 2 km from headquarters where there were droppings, a good attic. This is in a grove of poplars, willows, locusts a few hundred meters from the bridge over the Rio Calefún and the Perito Moreno abelisk. Collected 60 km S <sup>E</sup> San Martin de Los Andes





1800 ft.; Nequén. Day sunny and warm. Evening warm and calm and clear. Strung 2 bat nets up to house.

Morelli says he has seen as many as 3 Bears incubating one nest of eggs simultaneously; recently saw an adult rhea with 40? young. Gays bats are here all year. Also has bats in a small house across the Colón Curá bridge at Corral de Piedra and in the Escuelita at Paso de Flores. Gays social system of guanacos is same as that described by Kopold for vicuñas; bands of bachelor males numbering hundreds. He also says spiders as big as dinner plates in Mendoza.

many bats (*hooked like myotis*) flying at dusk, above, below, and around one of the nets. at 10:15 one bat flying inside the house, escaped. at 11:15 6 bats flying inside the house, caught all of them (non-breeding ♂ + ♀ *Myotis*). At 3 a.m. nothing more.

at 8 pm set about 30 traps in decently chest-high thornbush, rabbit brush (a yellow composite) and scattered grass. Ants set about 41 in various habitats including moist area with pampa grass clumps.

Nov. 22 morning clear, calm,  $5\frac{1}{2}^{\circ}\text{C}$ . Nothing in nets, very traps held *Reithrodon*, *Eligmodontia*, and *Akodon jelskii*. Ants caught *Reithrodon*, *Akodon*, and either a juv. *Elgiva* or an *Colonyx*. Also I got 2 tucois in 2 traps set last evening.

Skinned all morning - sunny & warm. Dissected 2 *Reithrodon*, 3 *Elgiva*, and 1 *Akodon jelskii*.

Heard Calif. quail.

Drove to Corral de Piedra, which is slightly downstream and up in the hills from the Río Colón Curá. Turn right at the bridge, then right about a  $\frac{1}{2}$  km along the paved road onto a dirt track, then a couple of km farther. It is a rather forlorn outpost with a ranchouse, some workers quarters, a beautifully made big shearing barn, and two 40 ft - diam water tanks.





Old Matadero of Estancia Alicura. Nov 22, 1976. Per. 7599m



Corral de Piedras, Nov 28, 1976. 2 km. N. of Estancia Alicura



3-ft. deep and full to the brim. Bats squeaking at 8:30 p.m. in the creek in the back of the big shearing barn, droppings underneath. Poplars etc around the house, but little rather and sage brush of several species. Put a net inside the big barn and another over one of the water tanks. Saw Calif. quail and *Copetoma tinamou* 20 yds. apart.

Evening somewhat windy but warm. Lots of *myotis* drinking at the tank without the net. A few at the tank with net, but avoided it. At 10:30 there were 4 ♀ *myotis* in the barn net, none flying there.

Mar. 23

Morning calm,  $\frac{1}{2}$  overcast, warm. Bats returned to barn between 4 and 5:30 a.m., but ~~none~~ <sup>no more</sup> caught in net. In the water tank net at 6:00 were 1 *myotis* ♀ and 1 *Tadarida* ♂. Returned to river bridge to skin, then drove to La Rinconada and the game wood estancia 3 km W of La Rinconada. It is a lush oasis of flowers, trees of all sorts including eucalyptus, *Sequoia gigantea*, alder, ash, junipers, cypress, poplar, alamo, apple, cherry etc etc. Calif. poppy. Artesian water. Hummingbirds in winter but not in summer, whereas they are found in summer in *junco de los Andes*. They consider *Passerina* common in summer in the dense juniper trees and current bushes. Looked in various buildings for bats. Found one group in the ceiling of the tack room, but no way to get to them.

Left about 4 and drove to Estancia Chacabuco where we met Peter <sup>Bramberg family</sup> Symphon, the administrator (French sportsman owner). He said lots of bats in the attic of his house. We promptly had a look and caught 7 in crevices of beams - all male *myotis* and one ♂ *Tadarida*. Attic was quite warm. Lots of droppings, plus a waxy accumulations on the brick chimney where it passes through the attic. Could hear squeaking of other unreachables. They have made numerous attempts at eradication with spray cans of deodorant, burning



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sulfur etc. at dusk a half-dozen were flying round-and-round in a sudden subsection of the attic; caught 3 of them with sweepnet, one a female. at about 10, a dozen or more were flying in same area, and I caught about 10 of them, including females, all myotis, great range of coloration. Put up no nets. night calm + clear, not cold.

Nov. 24

morning calm, somewhat overcast, temp at 6:15  $\frac{1}{2}^{\circ}\text{C}$ . at 8 a.m. all quiet in attic, caught 1 more myotis in a crack. This house will be flooded upon completion of the Alicura dam in maybe 5 years.

Peter Symphon has only seen one Taxus (in a rose bush) in many years ~~years~~ here, in spite of lots of pines, junipers, poplars, and other flowers + planting, He is an excellent bird taxidermist and a good observer. Has raised pygmy owls (and one was colling while we were there). One of the French owners is a falconer and captures hawks of various sorts at the Estancia, as well as shooting stags in the bosque in the higher parts of the ~~hacienda~~ <sup>estancia</sup> (100,000 hectares). Cowboys kill numerous Jaguars, and Symphon shoots them when they get into the stud lambs. about 1 per winter. He had stuffed a barn owl holding a short-tailed Notonotus? that had been captured "up high near the snow". He and his wife both agree that the bats are present in the winter, probably near the chimneys. annual rainfall something like 500 mm, but this year very dry, about 250 mm.

This place is on the Rio Limay between Confluencia and the bridge over the Rio Colón Cura. mostly sage-brush habitat, Parurodon-like bunchgrass and cliffs, and willows.

Drove to Bariloché and checked into Selva Negra campground about 2 km W of town. one bat (myotis?) seen at dusk.





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Nov. 25 Drizzle almost all day. Visited the Fundación and Gallopin. Weather cleared at 7 p.m. Set 35 traps along lake front across <sup>past</sup> the road from the road to the campground. Inok grass, mint, blackberry, rose, Scotch broom, big Notofoqus with gnarled roots, marshy places, ants set similar live. Saw one bat at dusk.

Nov. 26 Morning partly clear. Caught 10 Myotis longi, 5 Akodon (one of them a diff species), and 1 Buteo borealis. Visited with Gallopin in Barileto and with Aldo Brandani of INTA, who has been working on hares and rabbits. The Fundación Barileto is under-going a budget crisis.

at 8 p.m. drove out to the Hotel Lago Moreno. One <sup>♀</sup> Histiotus hanging in a corner in attic of the garage, torpid. air temp in attic about 12°. Put up nets, drizzling. Temp at 9:15 6½°. a few bats seen flying at 9:30. Started catching <sup>myotis</sup> some at 10:15 at entrance to garage (a night roost). Still drizzling. more until midnight, then no more.

Nov. 27 Still drizzling. Nothing more in nets after about midnight. note that myotis arrived after about ¾ hr. of flying time, during drizzle, with fully full stomach and dry fur. In pit, none had wet fur when removed from the nets. all ♀♀, 1 myotis ad, 1 Histiotus. The wild rose here, unlike in Bolson, are not flowering yet. Compare stage of gestation of myotis. Put up one of the darker specimens.

Drove to the Miraflores RR Station east of Barileto, good attic but no bats. Then drove to Estancia Sorja on the Rio Limay at the Anfiteatro and talked with Sra Dolly Frey; no bats. Then returned to Estancia Corral de Piedras and put 2 nets over the water tanks. Evening calm, clear. Only a few bats flying at dusk. Caught two (myotis) before 10 p.m.



nov. 28

morning calm, clear, touch of frost; temp.  $\frac{1}{2}^{\circ}$  at dawn. 2 more myotis in nets; one of them a ♂.

Two singing at dawn and sunrise; a double call tuc-tuc rapidly, then a  $\frac{1}{2}$  second pause, repeat many times, then trailing off into a steady tuc-tuc-tuc-tuc. Three or more species of sage brush up to shoulder high, low green grass, and bare sandy gravel.

Drove to Paso de Flores, a ferry-boat over the Rio Zimay, and found bats under the corrugated roof of the school house. Two escaped and we caught 3, one of which, a preg. ♀ later escaped. Put up the skins of the remaining two; it was only slightly paler. The Alicura, Canal de Piedra, and Paso de Flores localities are in different Provinces but only a few miles apart. Some good cliffs and caves near Paso de Flores.

Spent night in the shearing shed of Estancia Alicura, with two nets in the shed, shearing ended earlier this week. Shed (= barn) smelt of disinfectant. Saw no bats or signs.

nov. 29

Temp at dawn  $\frac{1}{2}^{\circ}$ . No bats in nets. Drove to Bariloche, checked with Mrs. Rumbol, then off to Cerro Tronador with Carlos and Adriana. Set a complete series of trap lines at 4 different elevations in 4 different habitats of this Watershed ~~Watershed~~ study area.

845 m.  
① Mallin - This is the lowest of the four. Swampy grass, sphagnum, Chusquea, and noto, antarctica dwarf, Anta set 20, I set 6 Shermans, 8 museum specials, and 1 rat. The students set maybe 20±.

coiled + large 1065 m  
② Bosque Mito (N. douglasii and N. pumilio). Huge trees with some Chusquea, lots of rolling logs. Anta set traps.

1,300 m  
③ Lengua - Large N. pumilio. The students set ~~small~~ small and large Shermans. number unknown.



~~Long matoral~~ de Lengua 1,500m -

- (4) ~~Lengua matoral~~. This is the highest and is a tangle of bent-down N. pumilio. The sub in their plant census no. 10. I set 14 MS, and 7 shermans.

(west end)  
Drove back to Lago Masade, for the night. no bats seen at dusk. Day was clear sunny and warm, evening calm. These trapping localities are (1) in the valley of the Rio Castano Overo which comes off of Cerro Trowador and (2, 3) and (4) on the north side of the valley at increasing altitudes, about 44 km W of Barileche.

Nov. 30

Night clear & calm. Temp at 6:30 AM  $-3^{\circ}$ . Traps as follows:

- (1) Mallin - In my traps 1 Myotis macropterus and 1 Akodon longipilis, ante's 2 Akodon longipilis.  
(2) Bosque tufto - 1 Notomys with short tail and long front claws and hoofs fur, looks like a miniature mountain beaver, and 10 Akodon longipilis.  
(3) Bosque de Lengua - 1 Akodon longipilis (all shermans, poorly set)  
(4) matoral de Lengua - 1 Notomys as above.

The shermans were uniformly unsuccessful. One of ante's Akodon in the Bosque was caught between 9<sup>AM</sup> and 1 PM.

at 5 P.M. divided up the traps evenly and set in 3 places

- (1) Gallery forest <sup>2600 ft.</sup> along the river (lower than any of the above). This was N. antarctica and chusquea, rather scrubby.  
(2) a burn <sup>Bosque Bajo, 3000 ft.</sup> 20 yrs ago. This was brushy, almost impenetrable.  
(3) another burn <sup>Bosque Bajo</sup>, slightly larger trees, chusquea, woodcutters. 2700 ft.

Day was clear & sunny. Lots of small iridescent lizards in the mallin, and even up in the Lengua matoral.



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Nov 30.

Akodon longipilis = red-banded, pointed upturned snout.  
8 Akodon longipilis from Bosque Nuevo, discarded:

37g ♀ no emb, with CL.

45g ♂ competent

40g ♂ competent

41g ♀ marks of fetus, no contents

40g ♂ "

53g ♀ 3 fetos, 23mm CL

42g ♂ "

the kids put up 2 more (♂♂) ad

38g ♂ "

anta put up 1 Notomys

also discarded 2 Akodon longipilis from the Mallin swamp:

a 45-g breeding ♂ and a 37-g female.

Dec 1

night calm, clear. started clouding up in the morning, no frost. Trap lines as follows: Bosque Bajo 2700ft (maestrua, carro 6), I had 14 traps of various kinds and caught 1 Akodon longipilis and 1 Oryzomys. Anta with 12 traps (all M.S.)

Discarded: from ① Incendio: Oryzomys ♀ 32g preg - 2 emb.  
Akodons longipilis ♀ 34g { large m. parous lact.

♀ 33g - ut. + vagina large  
considerable mammary tissue

♂ 40g - testes + acc. very large

♂ 43g - " " "

♀ 30g much mammary tissue  
uterine scars

♀ 44g much mammary tissue  
uterine scars

② from Bosque Galeria

Akodons l.

♂ 48g testes very large

♀ 42g 4 emb.





Pearson  
1976

50

caught 1 Abodon longi. Carlos caught 1 Abodon other sp.

In the Bosque Bajo burned in 1957 (3000 ft) I had 8 traps and caught 4 Abodon longifilis. Anita used 11 Shermans and caught 7 mice (Abodon + Oryzomys)

In Bosque Salera - I had 10 traps (nothing caught), Anita had 15 rat traps, caught 3 Abodon longifilis. 2600 ft.

The totals including Carlos:

Bosque Bajo, Census 6 - 4 A. longifilis, 1 A. sp., 1 Oryzomys.

Bosque Bajo, Burned 1957 - 7 A. longifilis, 4 Oryzomys,

Bosque Salera - 3 A. longifilis.

Skinned until about 2:30, then drove back to Barilecho. Stayed at Humboldt home.

Dec. 2

Discussion in A.M. with Aldo Brandani, his wife Maria Alkima?, and Jorge Amaya who has been working on hares and rabbits for INTA. At 6 drove to Estancia El Condor with the Humboldt (south then east of airport). Shearing time, manager is Horacio and wife Chue Chuey. In the attic of their house found one cluster of the giant Histioteles (macrotes?) at the peak where 2 rafters meet the ridgepole, about 3 of them available by hand, and 2 or 3 more with forceps. Probably missed one of them. In a side attic Anita found a cluster hanging in the open, about a dozen, one of them Histioteles montanae and the others macrotes?. Caught all.

~~Found~~ They were not quite well aware. This was about 7:30 8 p.m. almost all with newborn young, 1 late preg., a few not preg. Then looked for red rats in conifers, montanae etc, but found none.



Pearson  
1976

Dec. 3 Baribabo. Skinned in A.M. (mostly clear, windy on lake). In addition to those prepared as skins, we kept alive for release the following:

from the main attic:	♀	big-eared mother and naked pink 22 mm <sup>forearm</sup> young
" " " "	♀	" " " " 20 mm "
" " " "	♀	" late preg.
" " side attic	♀	" mother & naked young.
" " " "	♀	" " "



















